

MAXXAIR™ MSX Series

AUTOMOTIVE REFRIGERANT MANAGEMENT CENTERS

Recover, Recycle & Recharge A/C Systems
In Passenger Vehicles & Light Trucks



Models MSX134, MSX1234, and MSX3030
For use with R-134a and R-1234yf Refrigerants

OWNER'S MANUAL (English)

Latest updates: www.cpsproducts.com

TO BE OPERATED BY QUALIFIED PERSONNEL ONLY

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General Safety Instructions

ONLY QUALIFIED SERVICE PERSONNEL SHOULD OPERATE THIS MACHINE.

Most states, countries, etc., may require the user to be licensed. Please check with your local government agency.

DANGER: This unit's recovery tank contains liquid refrigerant. Overfilling of a recovery tank may cause a violent explosion resulting in severe injury or even death. Do not disable the overfill safety features. Always make sure the correct tank is on the scale.

DANGER: Only use the specified recovery tanks provided with this unit. See your distributor for replacement tanks.

DANGER: Avoid breathing refrigerant vapors and lubricant vapor or mist. Breathing high concentration levels may cause heart arrhythmia, loss of consciousness, or even cause suffocation.

DANGER: Electrical shock hazard! Always disconnect power source when servicing this equipment.

DANGER: Do not use compressed air to pressure test or leak test the MSX unit or vehicle air conditioning system. Mixtures of air and refrigerant are combustible at elevated pressures. These mixtures are potentially dangerous and may result in fire or explosion causing personal injury or property damage.

CAUTION: All hoses may contain liquid refrigerant under pressure. Contact with refrigerant may cause frostbite or other related injuries. Wear proper personal protective equipment such as safety goggles and gloves. When disconnecting any hose, please use extreme caution.

CAUTION: Exposure to refrigerant vapors may irritate eyes, nose, throat, and skin. Please read the manufacturers Material Safety Data Sheet for further safety information on refrigerants and lubricants.

CAUTION: To reduce the risk of fire, avoid the use of extension cords thinner than NO. 16 awg. (1,5mm²). The following table references extension cord wire size vs. maximum length:

EXTENSION CORD			
(Imperial)		(Metric)	
Gauge (awg)	Length (Ft)	Gauge (mm ²)	Length (m)
16	10	1.5	3
14	20	2.5	6.1
12	25	4	7.6

CAUTION: Do not use this equipment in the vicinity of spilled or open containers of gasoline or other flammable substances. Make certain that all safety devices are functioning properly before operating the equipment.

CAUTION: This equipment should be used in locations with mechanical ventilation that provides as least 4 air changes per hour.

CAUTION: RISK OF INJURY, the equipment should only be operated by certified personnel.

CAUTION: Use only CPS certified hose assemblies on this unit. The hose assemblies are made to proper length, contain shut-offs where required and have direct affect on the proper operation of this equipment.

CAUTION: R-134a is a Class III highly flammable refrigerant. Use in well ventilated areas. Minimize leakage from the unit. Periodically check MSX machine for leaks.

CAUTION: R-1234yf is a Class III highly flammable refrigerant. Use in well ventilated areas. Minimize leakage from the unit. Periodically check MSX3030 machine for leaks.

General Safety Instructions (continued)



High Pressure Alert

The MSX will alert the user should a high pressure condition exist on the outlet side of the compressor. When such a condition is detected, the compressor will turn **off** and won't restart until the high pressure condition is remedied. If this occurs, check to ensure that tank valves and hose ball valves running to the tank and filters are **open**. If all valves are open, contact CPS Technical Support to determine the cause of the alarm.



Tank Overfill Limit

The MSX Series' 30 lb internal storage tank is designed to contain a maximum of 20.96 Lbs (9.52 Kg) of refrigerant. If this amount is exceeded, the user will be alerted and system operations will be halted. Before normal operation can continue, the overfill condition must be remedied by moving refrigerant from the tank to another storage tank or into a vehicle AC system. The charge function may be used to transfer internally stored refrigerant to an external storage facility.

Product Registration-Activation

To register the MSX Refrigerant Management Machine for the MAXXAIR™ product warranty, please visit the CPS website at www.cpsproducts.com/hvac-warranty-registration/. Contact us if you have any technical issues during registration of this machine. You may also register this machine by using the touch screen.

Agency Approvals, Standards, Patents

UL 1963 EEI Issued: 2013/10/11 Ed: 4 Refrigerant Recovery/Recycling Equipment

CSA C22.2 120 DEI Issued: 2013/03/01 Ed: 4 Refrigeration Equipment (R2018)

This machine is covered under US Patent 8,082,750.

Overview

The MSX Series Refrigerant Management Centers are for use with both R-134a and R-1234yf refrigerants and have been designed for automotive technicians to easily recover, recycle, evacuate and recharge air conditioning systems in passenger vehicles and light trucks.

- Integrated oil injection on Selected models
- Improved valve technology increase speed of service by x% compared to competitive units (validated by Engineering)
- Oilless compressor- decreases recovery time and enables more thorough internal flush
- Upgradable to 50lb tank
- Bluetooth and Wi-Fi on board
- 7" color Touch screen with enhanced navigation
- Wireless printing enabled
- Optimized for UView® A/C Oils

Key Features/Benefits

Features	Benefits
7" Color Display, With Touch-Screen Icon	User-friendly icons allow fast, easy selection of recovery, evacuation, charge, full cycle and tank refill functions, or setup and maintenance menus.
Vehicle A/C System Database	MSX Series machines include a database of refrigerants and refrigerant oil for most vehicles sold in North America since 1994.
Low and High Side "Barrier" Service Hoses & Couplings	The included barrier hoses and couplings minimize the loss of expensive refrigerant, which can also harm the atmosphere.
Filter/Dryer	The installed filter-dryer filters the R-1234yf refrigerant inside the vehicle's A/C system, and absorbs any system contaminants which can reduce compressor life.
Temperature Probe Accessory	MSX Machines include a corded probe (#TMX2P) for measuring temperature in AC vents.
1 Lb (454 Gm) Check Weight	For accurately calibrating the installed refrigerant charging scale.
30 Lb Refrigerant Tank	The DOT certified tank is designed to safely recover, charge and transport refrigerant used with MSX Series machines. Available in single cylinders or in pallet quantities.
Bluetooth Low Energy (BLE) Capable	MSX Series machines can be used with the CPS "CarSmart AC Inspector" wireless accessory (#TAC100) to log temperature, humidity, dew point and other diagnostic data inside of, or around a vehicle.
Wi-Fi Capable	MSX Series machines can be connected to other Wi-Fi devices or printers and job reports can be e-mailed directly from the machine.
MAXXAIR™ Warranty	Two-Year Full Coverage Warranty

Optional Accessories



#MXXC Dust Cover
Fits any CPS MSX series machine.



#TAC100 CarSmart AC Inspector Includes 2 probes for measuring or data logging temperature, humidity, dew point, etc., inside of, or around a vehicle.



#CRX400T 50 Lb Refrigerant Tank
Available from CPS as individual tanks, or in pallet quantities



#CCXHB Heater Blanket
This accessory can be applied to the refrigerant tank to speed up charging during colder weather.

Not Included (Shop Must Purchase)

- Refrigerants (R-134a, R-1234yf)
- Refrigerant oil/dye injection system
- Optional Driverless Bluetooth Thermal Printer can be purchased online; Example: Model PT-210 or similar

Specifications

MSX Series Machine

Power	115V 60Hz
Compressor	2/3 HP Twin Cylinder Oilless
Gauges	3.5" Low side, 30 in/Hg to 250 psi; High Side, 0 to 600 psi
Hoses	10 Ft. (3.0 m), Barrier Type
Refrigerant	For Use With R-134a and R-1234yf
ASHRAE Refrigerant Code	A1
Maximum Recovery Rate	Up To 1 Lb (0.453 kg) per minute
Storage Tank	1 x 30 lb DOT tank (specifications on page 8)
Display	7" Touch Screen with 256 color graphical display
Construction	Sheet metal frame with molded plastic panels. 1 piece handlebar, 4" front casters and 10" foam-filled rear tires for exceptional maneuverability
Operating Temperature Range	50°F to 122°F (10°C to 50°C)
Operating Humidity Range	0% to 95% (Non-Condensing)
Dimensions (H x W x D)	43.6" x 22.6" x 28.9" (1.1 x 0.57 x 0.28 m)
Weight (Without Packaging)	Gross Weight: 208 Lbs (With Packaging)
Maxxair™ 2-Year Full Coverage Warranty	See Page 47

Vacuum Pump

Stage	2
Maximum Free Air Displacement	2 CFM at 60 Hz / 48l/m @ 50 Hz
Motor Size (HP), RPM @ 50/60Hz	1/3 HP (@1440 RPM/50 Hz Or 1720 RPM/60 Hz)
Voltage, Watts, Amps	110~120VAC Or 220VAC @50/60 Hz
Ignition Proof Construction	Meets ANSI 12.12.1
Ultimate Vacuum	10 Microns
Refrigerant Class	A1, A2
Operating Temperature Range	32°F to 125°F (0°C to 52°C)
Storage Temperature Range	32 F to 104 F (0 C to 40 C)
Pro-Set® Vacuum Pump Oil Capacity	11 oz (330 ml)
Intake Fittings	1/4" & 3/8" SAE Male, ACME 1/2"
High Side Gauge (Analog)	0 ~ 550 psi, (38 bar ~ bar), 3792 ~ kPa
Low Side Gauge (Analog)	0 ~ 350 psi, (0 ~ 24 bar), 0 ~ 2400 kPa
Motor Thermally Protected	Yes

Refrigerant Scale

Tare (Empty) Weight Mode	Yes
Units (Weight) Readout	lb & oz, or kg & gm
Weight Accuracy	0.015% of Reading [or ± 0.25 oz (10 g) whichever >]
Display Resolution (Increments)	0.25 Oz (10 g)
Platform Dimensions	8.75" x 8.75" (22.3 x 22.3 cm)
Overload Protection	Mechanical (Internal Overload Stop)
Calibrated To NIST Standards	Yes
Declaration Of Conformity	EN 61326-1:2013, CISPR 11:2009/A1:2010

Specifications (continued)

Refrigerant Tank

(Industry Standard Specifications)

	Weight of Empty Tank		Tank Water Capacity		Max. Refrigerant Weight (80% Of Water Capacity)		Total Weight (Tank & Refrigerant)		Tank Foot Ring Diameter		Tank Outside Diameter		Tank Height		Max. Pressure Rating
	lb	kg	lb	kg	lb	kg	lb	kg	in	mm	in	mm	in	mm	psig (bar)
CRX430T 30 Lb (13.60 kg) Included	17.5	7.9	26.2*	11.9*	20.96*	9.52*	38.46	17.42	7.8	198.1	9.5	241.3	18.1	459.7	400 (27.57)
Optional Accessory: CRX400T 50 Lb (22.7 kg)	28.3	12.8	47.4	21.5	37.92*	17.2*	66.22	30.0	8	203.2	12.5	317.5	19.75	501.7	400 (27.57)

*Maximum weight of refrigerant that should be recovered

CPS® Refrigerant Recovery Tanks

CPS® Refrigerant Recovery Tanks are DOT certified for safe refrigerant storage, featuring a refrigerant-compatible sealant for secure, leak-resistant connections. They include an auxiliary port for an optional overfill sensor, and are both liquid and vapor UL listed for comprehensive safety. The powder-coated Y-valve ensures robust rust protection, and with 1/4" SAE Male fittings, these tanks meet high-quality standards in refrigerant handling and storage.

Availability

- CRX430T..... 30 lb tank..... (Factory installed)
- CRX400TB... 30 lb tank 40/Pallet (Optional)
- CRX400T..... 50 lb tank (Optional)
- CRX400TB... 50 lb tank 24/Pallet (Optional)



CRX430T (Factory installed)



CRX400T (Optional 50 lb Size Tank)

Refrigerant Cylinder Heater Blanket

Part number	AR27XHB115-1
Voltage (Hz)	120 VAC (50/60 Hz)
Watts	340 W
Amps	2.8
For Cylinder Sizes	From 8" (20 cm) to 14" (35 cm) Diameter Tanks
Control (Overheat Protection)	Automatic Thermal Cutoff (Encapsulated Thermostat)
Minimum Surface Temperature Of Tank	115°F (46°C)
Maximum Thermostat Temperature	130°F (55°C)
Power Cord Length	20" (0.50 m)
Adjustable Velcro Strap Max Length	19" (0.48 m)
Heater Blanket Width	3" (76 mm)
Heater Blanket Length	24" (.60 m)
Heater Blanket Color	Dark Orange
Electrical Connection Type	IEC320 C15 Female Connector



AR27XHB115-1 (Optional Refrigerant Cylinder Heater Blanket)

Machine Layout



1. Remove the protective packaging between the storage tank and the scale.

CAUTION: BEFORE TURNING THE MACHINE ON, ENSURE THERE ARE NO HOSES CONNECTED TO VEHICLE.

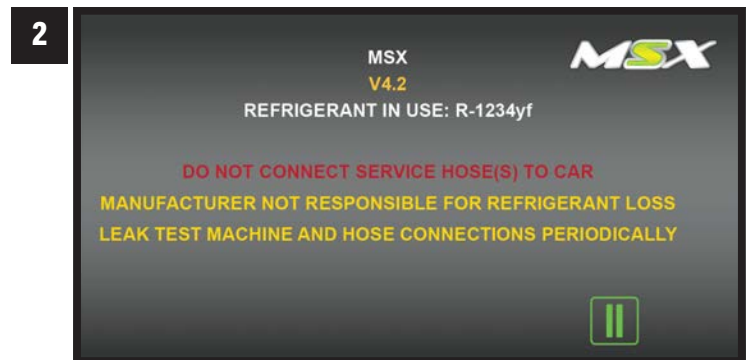
2. The vacuum pump on the MSX Series machine contains vacuum pump oil (factory filled). Check the sight glass on the vacuum pump to ensure oil level is between **MAX** and **MIN** lines.
3. Plug the MSX Series power cord into a proper power source.
4. On the front control panel, push the **POWER** button. A blue light will turn **ON**.
5. Machine will go through the following internal status check (not all screens are shown)



INITIAL START-UP SCREEN

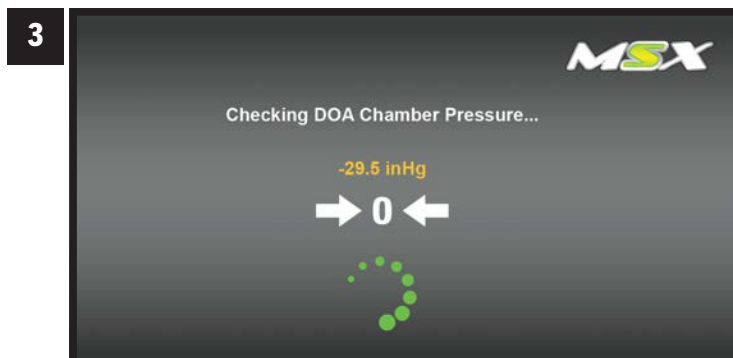
Initial start-up screen (shows software version number)

Service hoses should not be connected to vehicle.



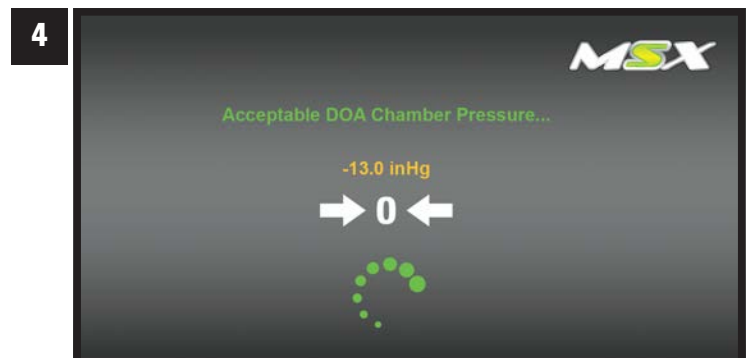
INITIAL START-UP SCREEN

Ensure service hoses are not connected to vehicle.



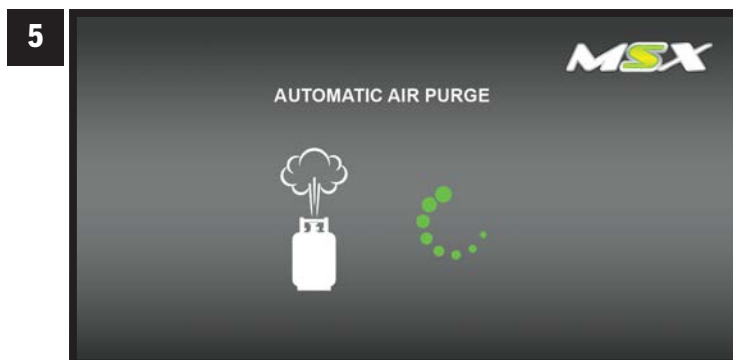
INITIAL START-UP SCREEN

Checking DOA chamber (for oil separation) pressure.



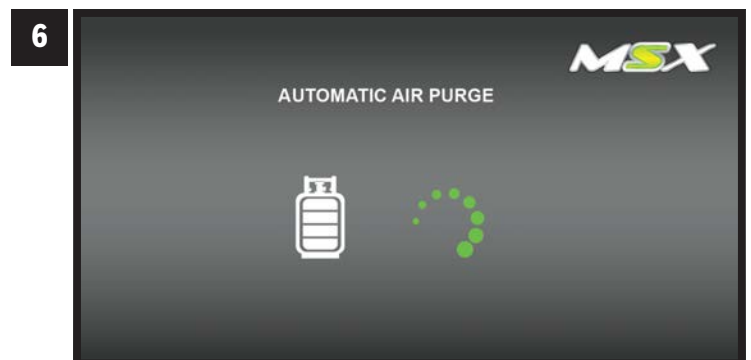
INITIAL START-UP SCREEN

Acceptable distillation chamber pressure.



INITIAL START-UP SCREEN

Automatic air purge (if needed).



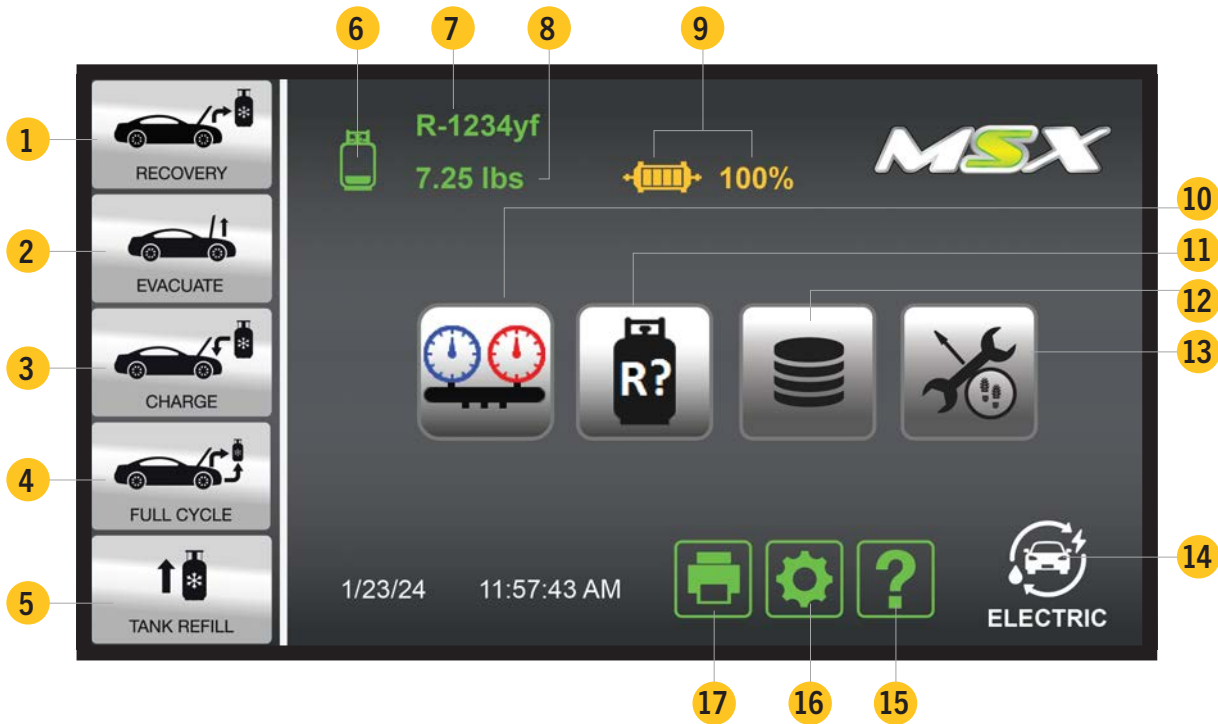
INITIAL START-UP SCREEN

Once automatic air purge completes, **Home** screen will reappear. Connect service hoses to the machine and install the included oil recovery bottle. Machine can now be operated by using the color touch screen.

Overview, Primary Touch Screen Keys

Home Screen

This MSX Series machine features a 7" (17.8 cm), color, touch-screen LCD display from which all machine functions or settings can be accessed.



5 Selectable Functions

- 1. Refrigerant Recovery pg 21
- 2. A/C System Evacuation..... pg 22
- 3. Refrigerant Charge..... pg 23
- 4. Full Cycle (Recovery, Evacuate & Recharge)..... pg 25
- 5. Refrigerant Tank Refill..... pg 26

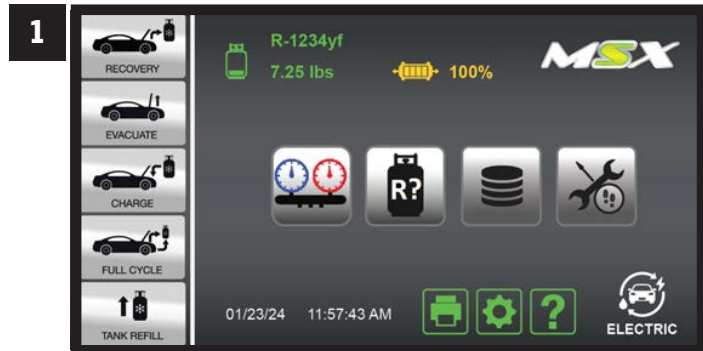
Touch Keys and Information Icons

- 6. Weight of Refrigerant In Tank (4 Segment Icon)
- 7. Refrigerant Type In Tank
- 8. Weight of Refrigerant In Tank
- 9. Filter Dryer Life (4 Segment Icon) pg 28
- 10. Car System Health Mode pg 39
- 11. Refrigerant Identification Key pg XX
- 12. A/C Data Base & End User License Agreement pg 48
- 13. Job Tracker..... pg 43
- 14. Hybrid Vehicle (On Select models, not available on machines with oil injection) pg 13
- 15. Help Menu..... pg 11
- 16. Machine Upkeep (Setup Functions and Maintenance) pg 12
- 17. Print..... pg 11


Overview, Primary Touch Screen Keys (continued)

Print Key

The **Print** function is accessed from the **Home** screen. Use the MSX Bluetooth low energy or Wi-Fi functions to connect to a wireless printer. Bluetooth range is generally up to 30 ft., while Wi-Fi is generally up to 150 ft (both direct line-of-sight).

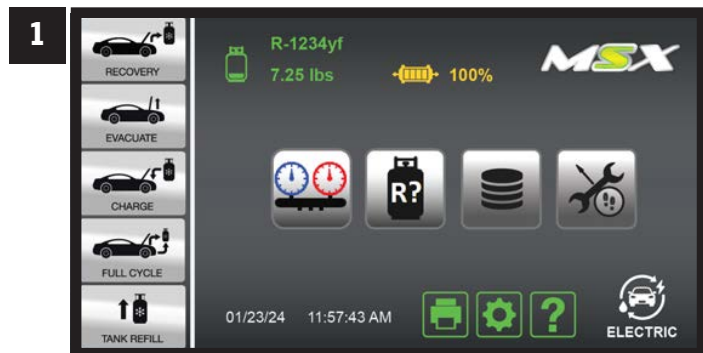


HOME

Touch  to receive a printed copy showing results of the **LAST function** performed

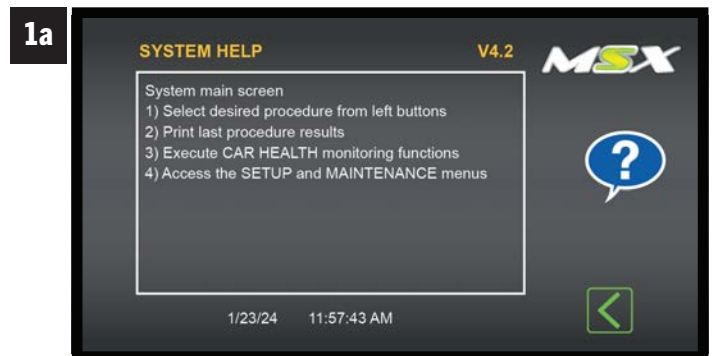
Help Menu

The **Help** menu is accessed from the **Home** screen.




HOME

Touch  to enter the **Help** Menu



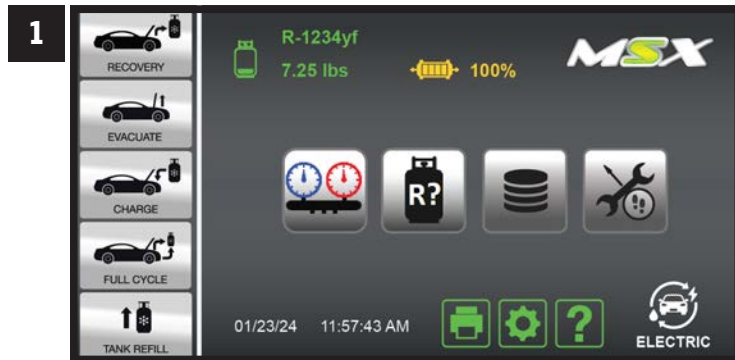
HOME ► HELP MENU

Firmware Version is shown at upper right. Touch  to return to the **Home** screen

Overview, Primary Touch Screen Keys (continued)

Machine Upkeep

The *Machine Upkeep* screen is accessed from the *Home* screen. It has two functions; *Setup Function* and *Maintenance*.



Touch to access the *Machine Upkeep* screen.



The serial number and firmware version are indicated.

Touch to enter the *Setup Function*

Touch to enter the *Maintenance Menu*

Touch to return to the *Home* screen



Setup Function

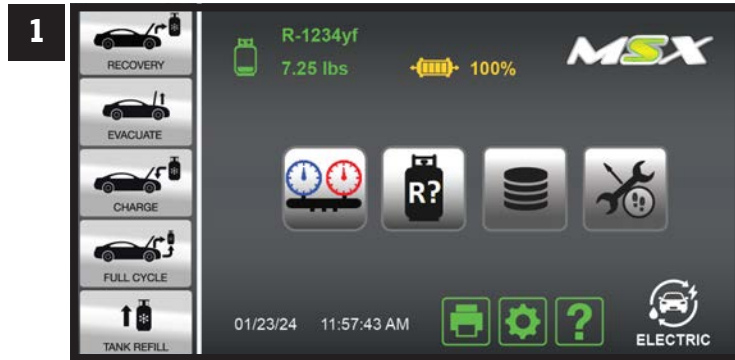
- Language
- Units of measure
- Tank/refrigerant weight
- Job tracker
- Wireless setup
- Set time or date
- Shop information
- SAE (or global standards)
- Previous screen Cancel Next screen




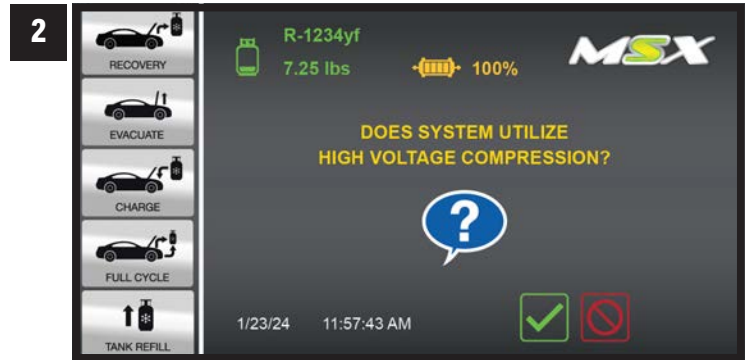
Maintenance



- Filter change
- Scale maintenance modes
- Pressure transducer
- Automatic air purge
- Valves and controls
- Software upgrade
- Change tanks
- Previous screen Cancel Next screen

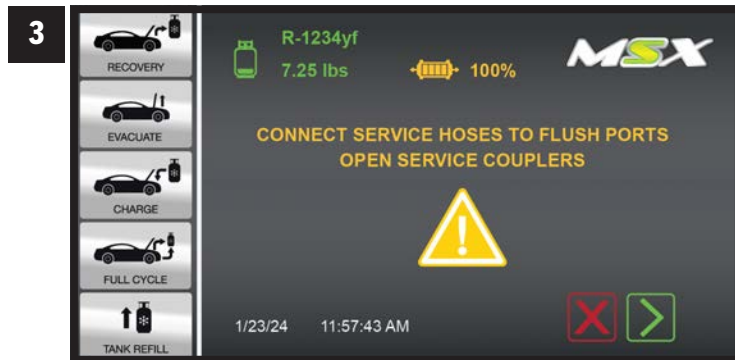
Hybrid Vehicles (On Select models, not available on machines with oil injection)





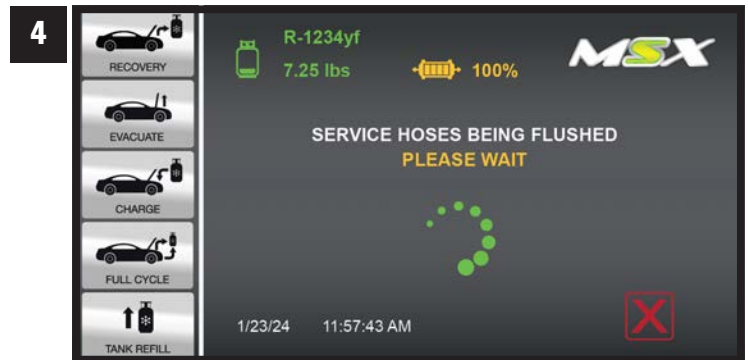
HOME
Touch  if the vehicle is hybrid to flush service hoses.



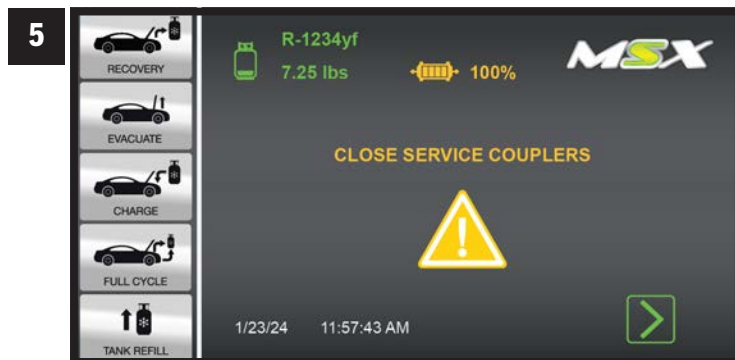
HOME ► HYBRID VEHICLE
Touch  if vehicle uses a high voltage compressor.
Touch  to return to *Home* screen.



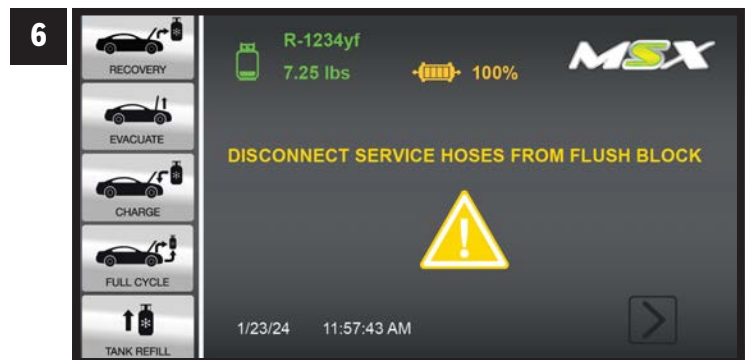
HOME ► HYBRID VEHICLE
Connect service hoses to flush ports. Open service couplers.
 Cancel  Next screen




HOME ► HYBRID VEHICLE
Wait while the service hoses are flushed.



HOME ► HYBRID VEHICLE
Close service couplers.  Next screen



HOME ► HYBRID VEHICLE
Disconnect service hoses from flush block.
Touch  to move to *Home* screen.

Language

MSX Series machines have an English language default setting. To change the default from English to German, French or Spanish, follow the instructions.



HOME ▶ SETUP FUNCTION

Touch to view *Languages*



HOME ▶ SETUP FUNCTION ▶ LANGUAGE

Touch a key that corresponds to the screen language you prefer: English, German, French or Spanish.
Touch to confirm your preferred language.

Units of Measure

Note: Not all screens are shown.

Display pressure, temperature, weight and altitude in SAE or metric units of measure.



HOME ▶ SETUP FUNCTION

Touch to select *Units Of Measure*



HOME ▶ SETUP FUNCTION ▶ UNITS OF MEASURE

Touch keys to select preferred *Units Of Measure*

Pressure: PSIG, BAR, MPA, Kgcm², KPA

Temperature: Fahrenheit, Celsius

Weight: Lbs, Lbs/oz, Kgs, Kgs/g, Oz

Altitude (enter value with keyboard)


Touch to confirm and move to next screen.

Tank and Refrigerant Weights

Note: Not all screens are shown.




HOME ▶ SETUP FUNCTION

Touch  and to move to next screen.




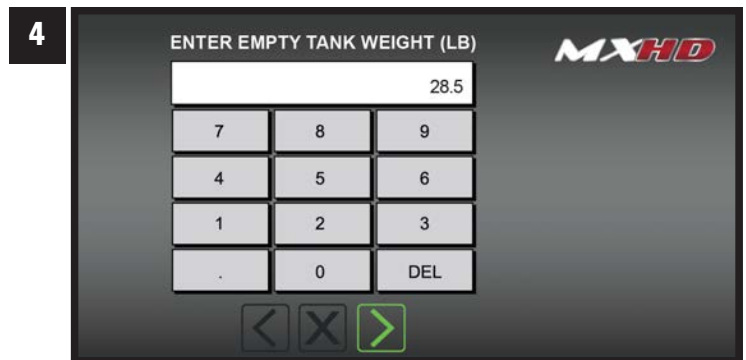
HOME ▶ SETUP FUNCTION ▶ TANK/REFRIGERANT WEIGHT


Touch  if weights shown are correct.

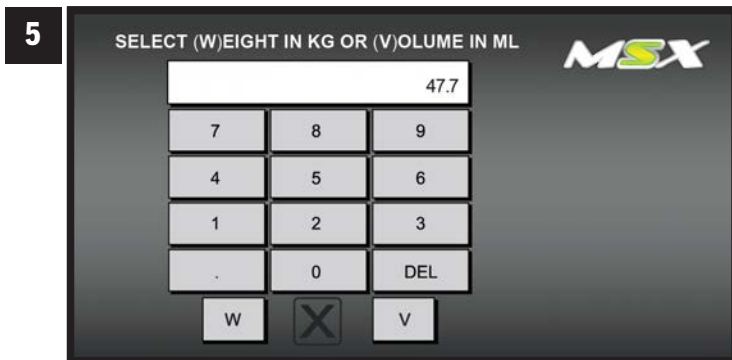
Touch  to change weights.



In order to change weight, you must enter your shop password using the onscreen keyboard. (example shown above). Touch  to continue to the next screen.



Enter *Empty Tank Weight*. (example shown above). Touch  to enter new tank weight and move to the next screen.



Enter *Tank Water Capacity*.
Touch "W" for **Weight**, or "V" for **Volume**.



Confirm or Change Refrigerant/Tank Weights.

Touch  if values are correct, and move to next screen.

Touch  if further changes are needed.

Job Tracker

Note: Not all screens are shown.



HOME ▶ SETUP FUNCTION

Touch for the *Job Tracker* screen



HOME ▶ SETUP FUNCTION ▶ JOB TRACKER

Touch to check or uncheck items to appear on a report.

Generate Warranty Code: Touch white box to have MSX machine generate an encrypted warranty code for manufacturer's vehicle being serviced.

Track Jobs: Touch white box to have job data appear. Selections include; **Technician Identification Number**, **Vehicle Identification Number** and **Work Order Number**.

Touch to enter selections and move to next screen.

Set Date or Time

Note: Not all screens are shown.



HOME ▶ SETUP FUNCTION

Touch to set the Date and/or Time.



HOME ▶ SETUP FUNCTION ▶ SET DATE OR TIME

Touch keys to enter the current date (MM/DD/YYYY). In next screen, touch keys to enter the time of day (Hours, Minutes, Seconds). Touch to enter data.

The MSX Series features Bluetooth Low Energy and Wi-Fi capability for convenient wireless connection to other wireless devices.

Bluetooth LE

Bluetooth Low Energy (Bluetooth LE, colloquially BLE, formerly marketed as Bluetooth Smart) is a wireless personal area network technology designed and marketed by the Bluetooth Special Interest Group (Bluetooth SIG). BLE is independent of classic Bluetooth and has no compatibility. Mobile operating systems including iOS, Android, Windows Phone and BlackBerry, as well as macOS, Linux, Windows 8 and Windows 10, natively support Bluetooth Low Energy.



HOME ► MACHINE UPKEEP ► SETUP FUNCTION

Touch  to access wireless devices for set up.



HOME ► MACHINE UPKEEP ► SETUP FUNCTION ► BLE DEVICES

When a BLE device is enabled, the system will search and connect when found. When a BLE device has been connected, icons will appear on the LCD touch screen. These devices can be enabled/disabled by touching the white check box under device icon.

Optional Bluetooth LE Accessories

CarSmart® A/C Inspector Temperature Probes allow technicians to data log temperature, feels like temperature, humidity, dry and wet bulb, and dew point readings inside of, or around passenger vehicles and light trucks over a preset period of time. In just a few minutes, CarSmart AC Inspector indicates whether the A/C system is operating within OEM specification by comparing outside humidity and temperature to that coming from the A/C vent.



Storage Case



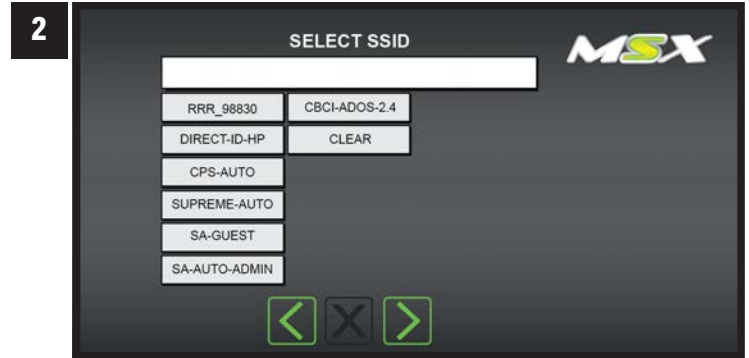
Measure temperature or humidity at 2 locations simultaneously with TAC100 CarSmart® A/C Inspector Temperature Probes.

The MSX Series can be connected to several Wi-Fi devices including printers. The MSX Series also has the ability to email job reports by entering an email address in the MSX machine.



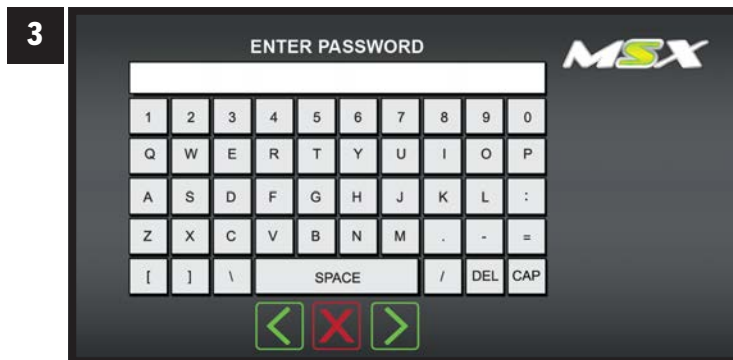
HOME ▶ MACHINE UPKEEP ▶ SETUP FUNCTION

Touch to connect to a Wi-Fi network, then to move to the next screen.



HOME ▶ MACHINE UPKEEP ▶ SETUP FUNCTION ▶ WI-FI

In the select SSID screen, select an available Wi-Fi network. Touch to move to the next screen.



HOME ▶ MACHINE UPKEEP ▶ SETUP FUNCTION ▶ WI-FI

Enter the appropriate Wi-Fi network password. Touch to move to the next screen.



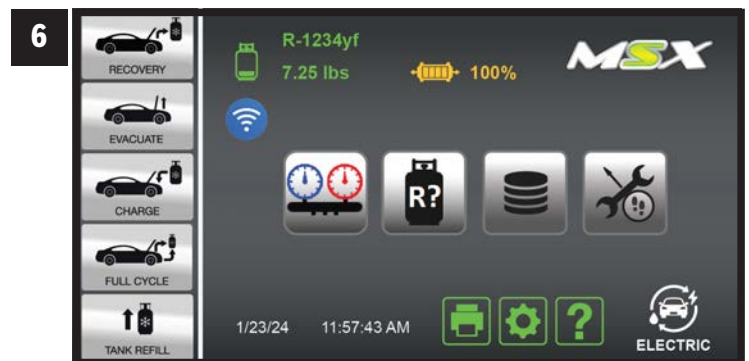
HOME ▶ MACHINE UPKEEP ▶ SETUP FUNCTION ▶ WI-FI

Select your wireless device(s), then touch to move to the next screen. Devices are enabled/disabled by touching the “checkbox” below each device icon.



HOME ▶ MACHINE UPKEEP ▶ SETUP FUNCTION ▶ WI-FI

Touch to exit the set-up function screen.



HOME ▶ MACHINE UPKEEP ▶ SETUP FUNCTION ▶ WI-FI

A Wi-Fi icon will be displayed on the screen if successful.

ONLINE REGISTRATION IS REQUIRED TO ACTIVATE YOUR MSX UNIT FOR USE. Follow the onscreen instructions as outlined below to activate your MSX unit. Once you have submitted the online registration form a **5-digit Activation Code** [to verify serial number] will be displayed onscreen.

Online registration requires Smart Device with QR code reader to display MSX registration form in browser. If Smart Device is not available, step forward on MSX registration instruction screens to the screen displaying Serial Number and point your browser to the following URL to register; <https://www.cpsproducts.com/msx-product-registration/>.



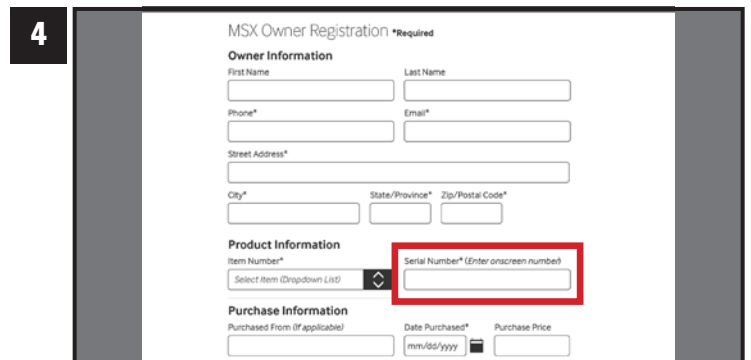
MSX Splash screen displays **model ID** as unit powers up. *MSX3030 model shown.*



Registration prompt appears onscreen. Touch **TOUCH HERE** to begin the registration process. (requires Smart Device/browser)



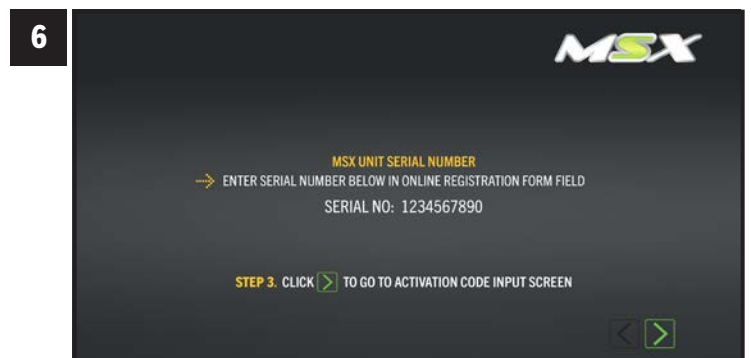
STEP 1: Point Smart Device camera/APP at QRC to launch browser displaying MSX online registration form. **STEP 2:** Touch to go display screen with MSX unit Serial Number.



Browser displays MSX Registration form URL. (<https://www.cpsproducts.com/msx-product-registration/>)

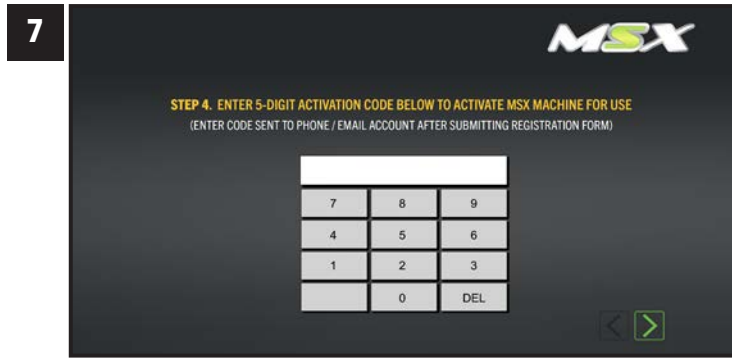


5-digit Activation Code displayed on successful submittal of Registration form, enter 5-digit code on MSX activation screen.

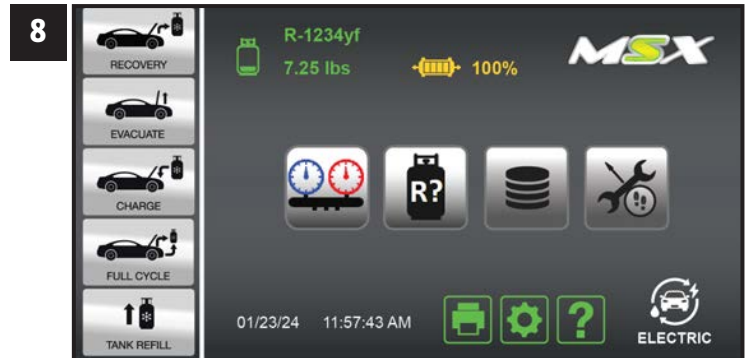


MSX unit Serial Number is displayed. Enter in Serial Number input field on form. **STEP 3:** Touch to go to Activation screen.

Online Registration / Activation (continued)



STEP 4: Enter 5-digit Activation code from browser window (submitted form); touch to activate unit.

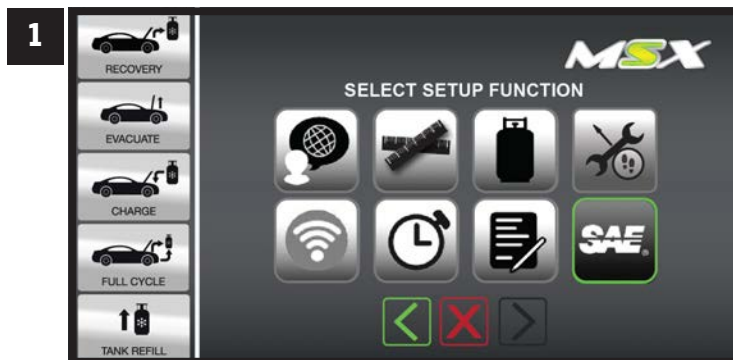


Upon successful Activation Code verification, the MSX unit **HOME** screen is displayed; all functions are operational

SAE / Global Standards

Note: Not all screens are shown.

MSX Series machines are shipped with a default SAE Mode setting (for the U.S. and most Canadian markets). Yet, some Canadian and many global markets use the International setting.



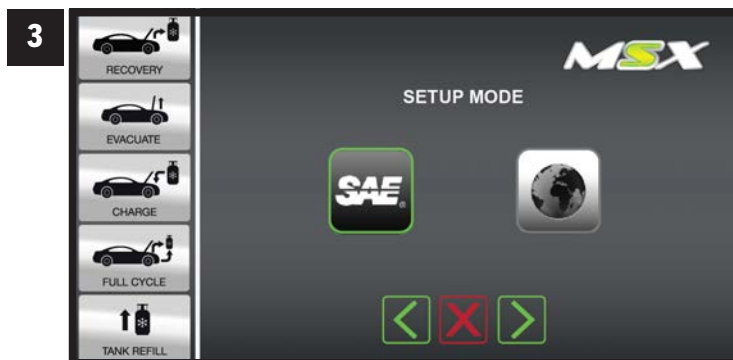
HOME ▶ SETUP FUNCTION

To switch between the factory default SAE Mode setting to International Mode, Touch .



HOME ▶ SETUP FUNCTION ▶ SAE MODE

Enter your password using the keyboard (example password shown). Contact CPS Technical Support for password to change to International Mode) that has been set up for this machine. Touch to enter password.



HOME ▶ SETUP FUNCTION ▶ SAE SETUP MODE

Touch so the MSX machine operation follows SAE J2788 standard, or touch for the MSX to follow international standards. Touch to enter your selection and move to next screen.

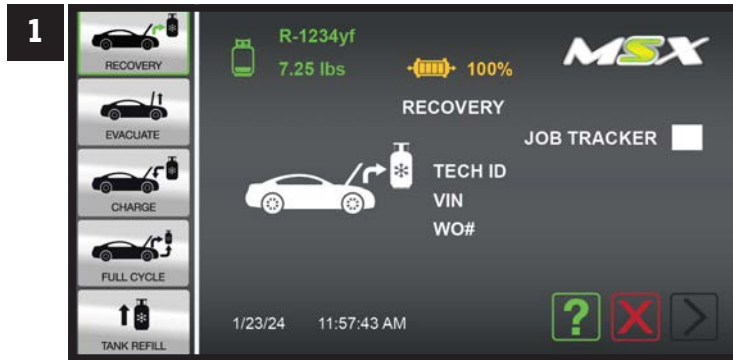
Operation

Refrigerant Recovery

Note: Not all screens are shown.

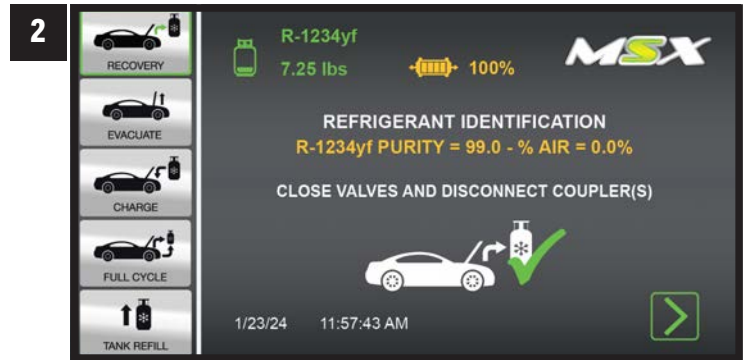
CAUTION: Do not connect service hoses to refrigerant source until instructed to do so.

The recovery process pulls refrigerant into a distillation chamber which has a coil that is heated by compressor outlet gas. This distills the refrigerant (turns it to gas) and separates liquids and debris from the refrigerant. Refrigerant then passes through the distillation chamber and compressor and is condensed into a liquid before coming to rest in the internal (included 30 Lb) storage tank. Refrigerant recovery automatically ends when the machine detects that the vehicle's system is void of refrigerant.



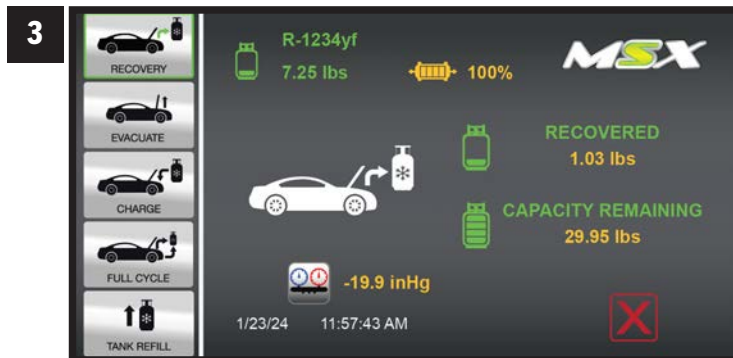
HOME

Before opening the A/C system for repair, first **Recover & Recycle** refrigerant from the A/C system. Touch to begin recovery. Touch the white *Job Tracker* box for job info to appear on reports. Touch to move to next screen.



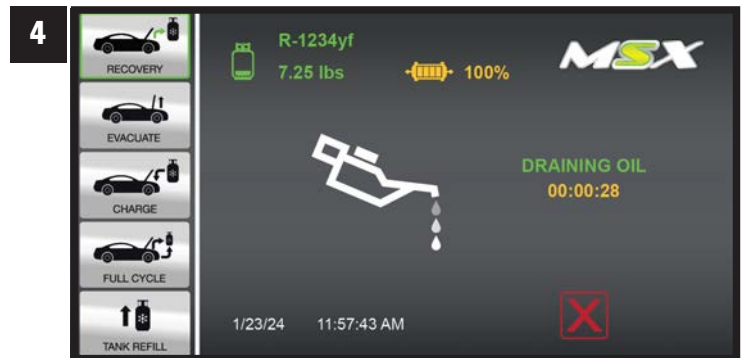
HOME ► RECOVERY

Once the refrigerant identification process is complete, follow onscreen instructions to begin the *Refrigerant Recovery* process. Touch to move to next screen.



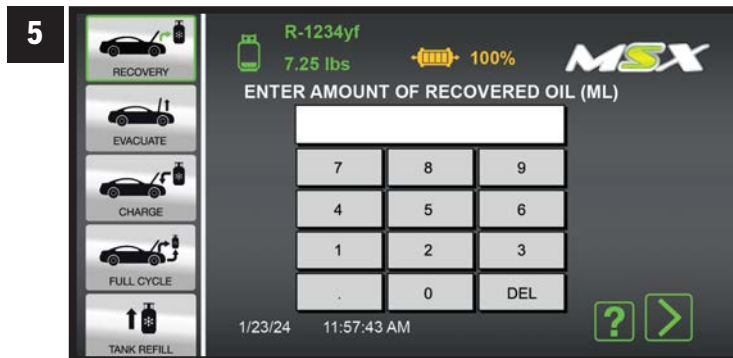
HOME ► RECOVERY

Screen displays weight of refrigerant recovered and remaining tank weight capacity.



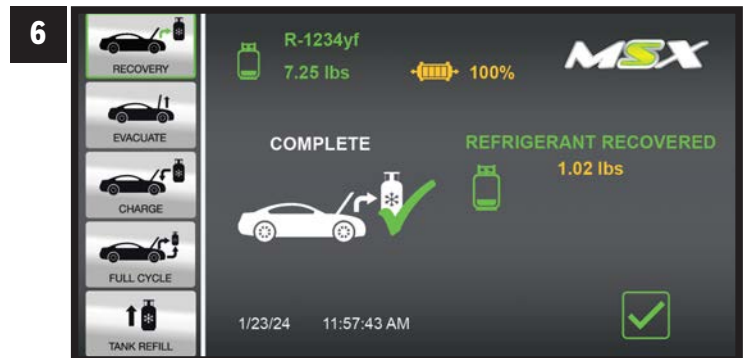
HOME ► RECOVERY

Refrigerant oil draining (into the MSX unit's included oil recovery bottle). Countdown timer shows remaining time.



HOME ► RECOVERY

Use keypad to enter amount of recovered oil. Touch to enter data and move to next screen.



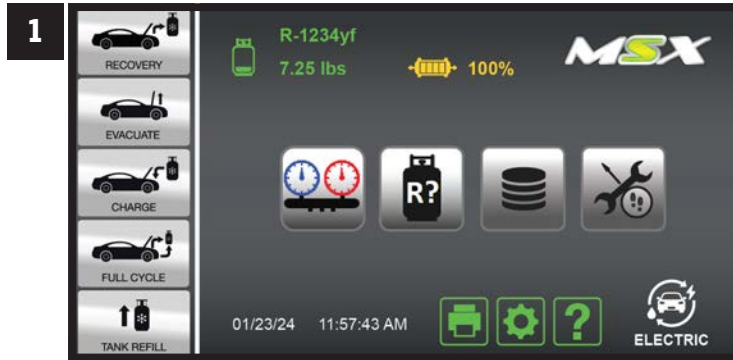
HOME ► RECOVERY

Touch to return to *Home* screen. The color display will show the amount (weight) of refrigerant that has been recovered. This information may be printed by touching on the *Home* screen.

A/C System Evacuation

Note: Not all screens are shown.

After all refrigerant has been recovered from the vehicle's A/C system and the system has been reassembled following repair, the A/C system must be evacuated. Any moisture that is present can mix with oil to form sludge, while moisture mixed with refrigerant forms hydrofluoric and hydrochloric acids all of which can permanently damage a system. The MSX Refrigerant Management Center will evacuate (degas and dehydrate) an A/C or refrigeration system prior to refrigerant charging. A system that has been properly evacuated assures that non-condensable and moisture won't later harm the refrigerant or refrigerant oil in the system.



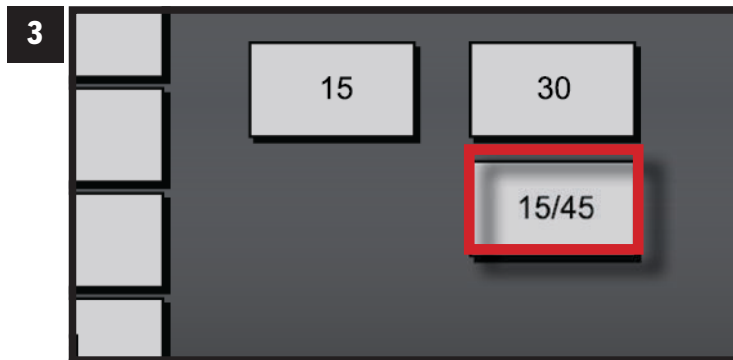
HOME

Touch to evacuate the A/C system.



HOME ► EVACUATE ► SET VACUUM TIME

Enter vacuum time in minutes or select from one of the 3 presets. If vacuum time exceeds 10 minutes, evacuation will be followed by a 5-minute leak test (vacuum decay). Touch to move to the next screen.



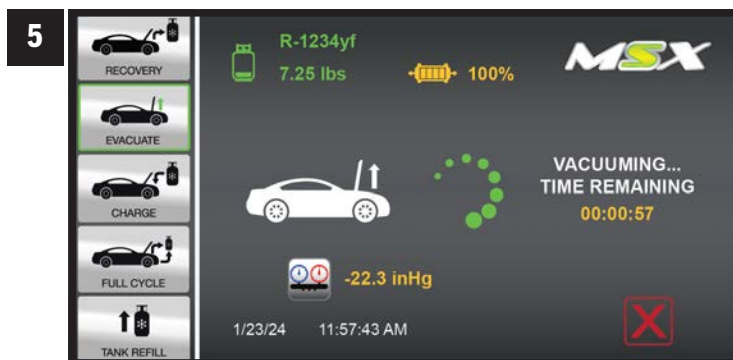
HOME ► EVACUATE ► SET VACUUM TIME (PRESETS)

Choosing the 15/45 preset, the machine will run 15 minutes of vacuum, perform a 5-minute leak test, and if it passes, proceed with 45 more minutes of vacuum.



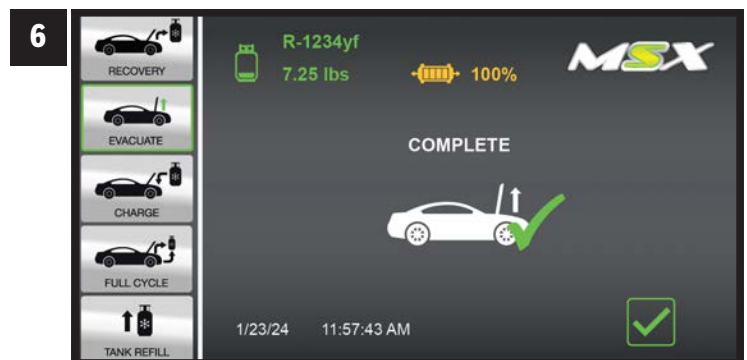
HOME ► EVACUATE ► SET VACUUM TIME (MANUAL OVERRIDE)

Operators can manually override the default. Examples: For a vacuum time of 10 minutes **enter 10**. For a vacuum time of 15 minutes and leak test time of 12 minutes, **enter 12/3**. For a vacuum time of 15 minutes, leak test time of 2 minutes and extra vacuum of 10 minutes, **enter 15/2/10**.



HOME ► EVACUATE ► VACUUMING

With evacuation in progress, **Vacuum Time Remaining** will appear on the display.



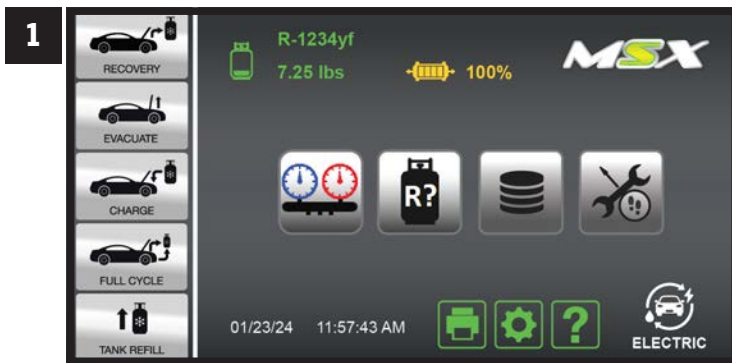
HOME ► EVACUATE ► VACUUM COMPLETE

When the specified vacuum time expires, **Complete** will appear. Touch to return to the **Home** screen.

The integrated **A/C Database** can be accessed by touching the  key. This database will specify the correct type and amount (weight) of refrigerant and refrigerant oil for vehicles sold in North America.

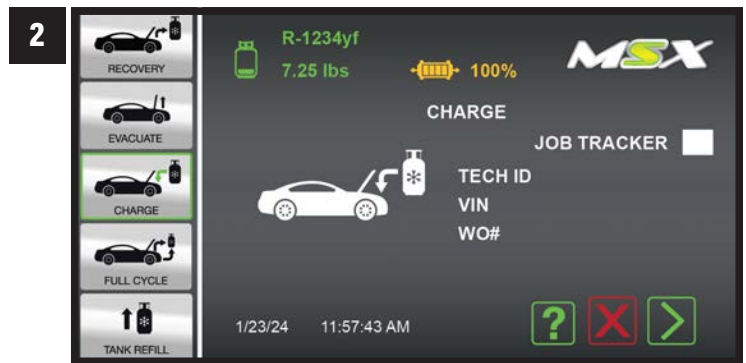
The charging sequence begins with a 10-minute vacuum leak test. This is an SAE requirement in SAE J2843 (R1234yf systems only). If the system passes the vacuum leak test, the machine will charge the system to 15% of the selected charge. Use an electronic leak detector meeting SAE J2913 for R-134a to leak test the evaporator(s). The MSX will complete the remaining 85% of the charge.

During cold conditions, a heater blanket (CPS optional accessory #CCXHB) may be wrapped around the recovery tank to assist with charging. If the MSX Series cannot complete a charge due to pressure equalization, it will notify the user to close the high side coupler and start the vehicle.




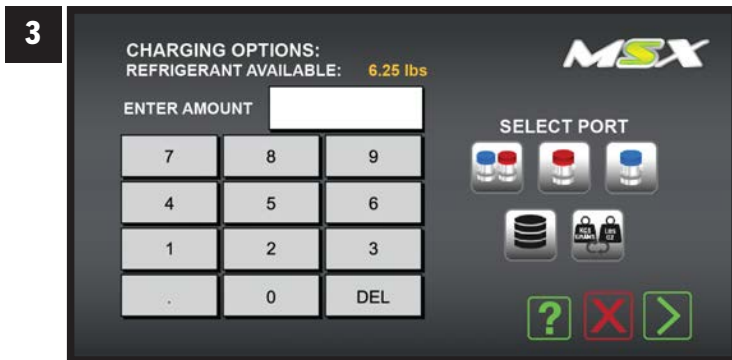
HOME

Touch  to begin the charging process.



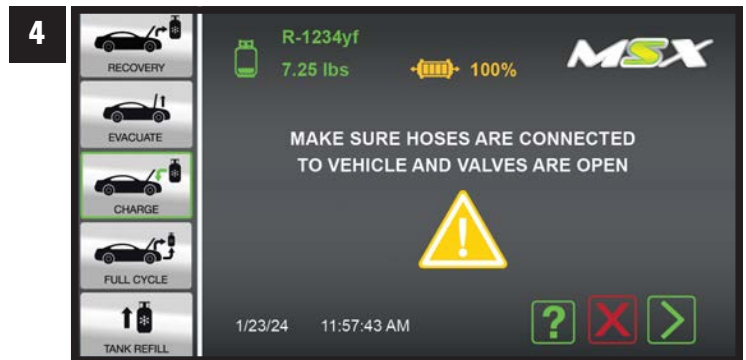
HOME ▶ CHARGE

Enter **Tech ID**, **VIN** and **Work Order** by touching the words. Touch the white **Job Tracker** box for job info to appear on reports. Touch  to move to next screen.




HOME ▶ CHARGE

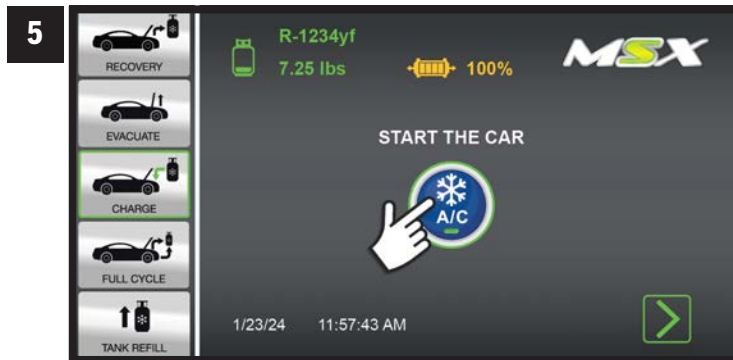
Using the keypad, enter the desired charge amount (refrigerant weight).



HOME ▶ CHARGE

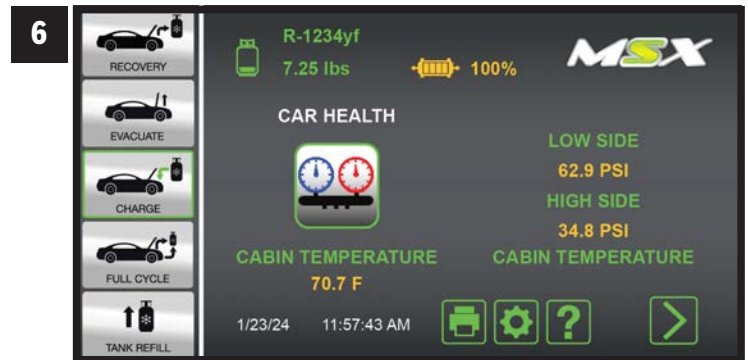
Make sure hoses are connected to vehicle and hose valves are open. Touch  to move to the next screen.

Refrigerant Charging (continued)

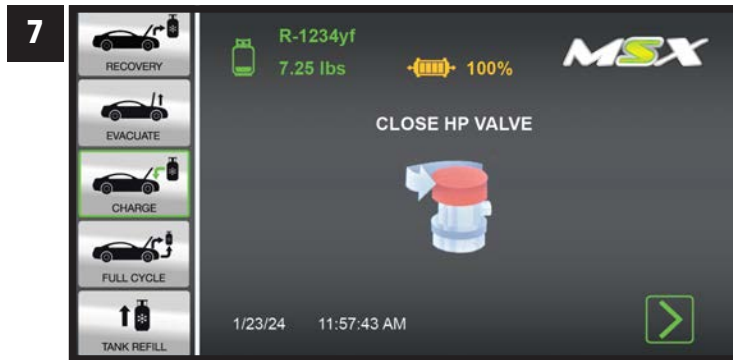


HOME ► CHARGE

Start the vehicle. Touch to move to the next screen.

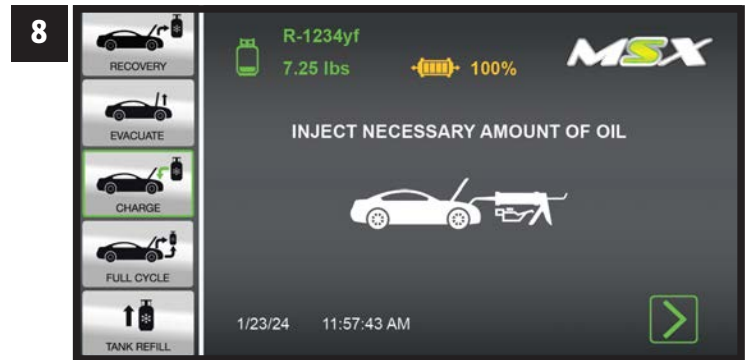


HOME ► CHARGE



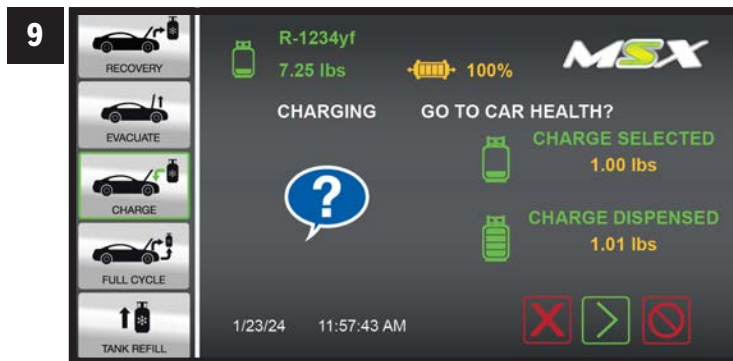
HOME ► CHARGE

Follow the onscreen instructions to close valves and disconnect coupler(s). Touch to move to the next screen.



HOME ► CHARGE

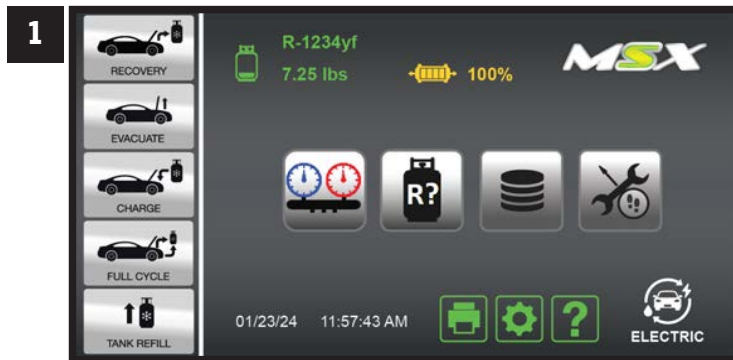
Inject the necessary amount of oil into vehicle. Touch to move to the next screen.




HOME ► CHARGE

Once complete, **Charge Selected vs. Charge Dispensed** amounts are shown at right. Touch for Car Health Mode or touch to go to the *Home* screen.

Select **Full Cycle** from the **Home** screen to Recover, Recycle, Vacuum, Leak Check (if desired) and Charge the vehicle's AC system.




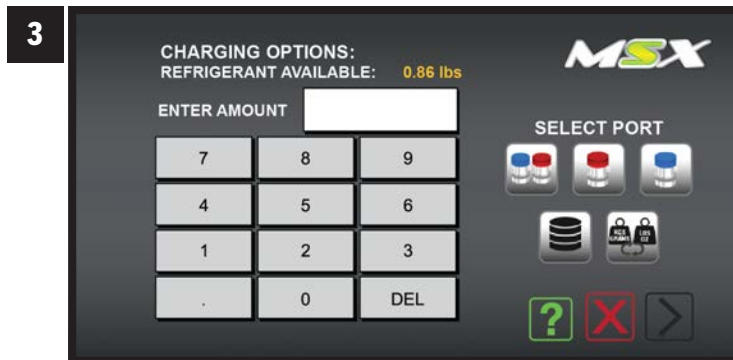
HOME

Touch  to access **Full Cycle** Function.




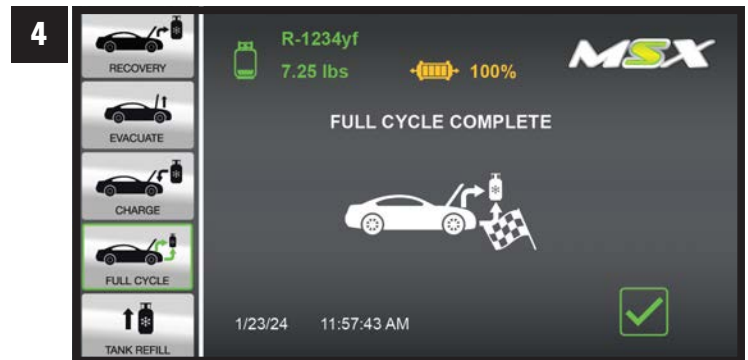
HOME ► FULL CYCLE

The display will prompt you to enter a vacuum time. Touch  to proceed to next screen.




HOME ► FULL CYCLE

The display will prompt you to enter a charge amount. Touch  to proceed to next screen.



HOME ► FULL CYCLE

Checkered flag icon displayed when **Full Cycle** process is complete.

1. The display will prompt you to enter a vacuum time and a vehicle charge amount.
2. Once **Full Cycle** has been selected and started, the machine will proceed with the recovery process described in a previous section.
3. At the end of **Recovery**, the MSX Series will automatically proceed to **Vacuum** and **Leak Test** (if the vacuum time selected was greater than 10 minutes)
4. Once **Vacuum** is complete, the desired charge amount will be installed in the vehicle.
5. The MSX Series will ask if you want to enter **Car Health Mode**. Select this mode to check/print system pressures and vent temperature.
6. If **Car Health Mode** is not selected, the MSX Series will instruct how to transfer refrigerant contained in the hoses into the vehicle's AC system.
7. Final results of the **Full Cycle** process can be printed by touching **Print**  found at the bottom of **Home** screen.

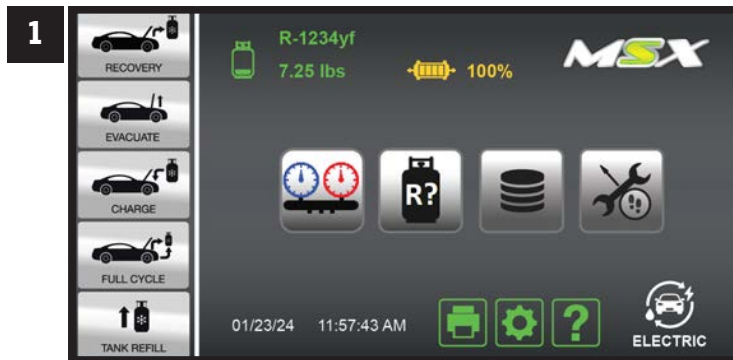
Refrigerant Tank Refill

Note: Not all screens are shown.

CAUTION: Follow directions on screen and do not open coupler or tank valve until screen shows to open both. If you fail to open tank, start over.

CAUTION: If hoses were connected before instructed, the machine will post a warning and instruct that the couplers be closed and the hoses removed. Not doing so will result in refrigerant loss (at the user's expense).

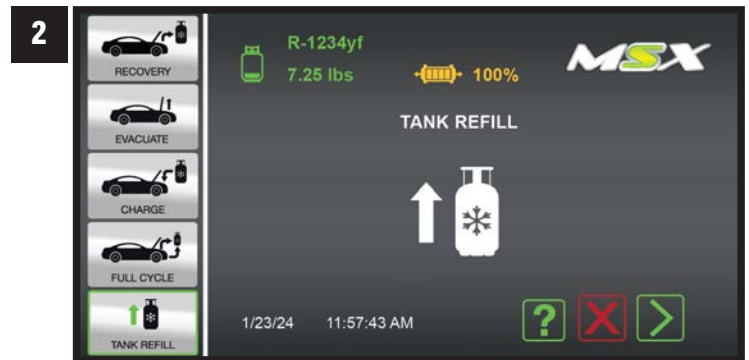
It is suggested that at least 4.5 lbs (2 kg) of refrigerant be available in the storage tank to begin any operation. If less is observed, choose this operation to add refrigerant to the internal tank. This operation transfers refrigerant in the liquid state to the internal storage tank. The refrigerant amount transferred in this mode is not counted toward the filter life.




HOME

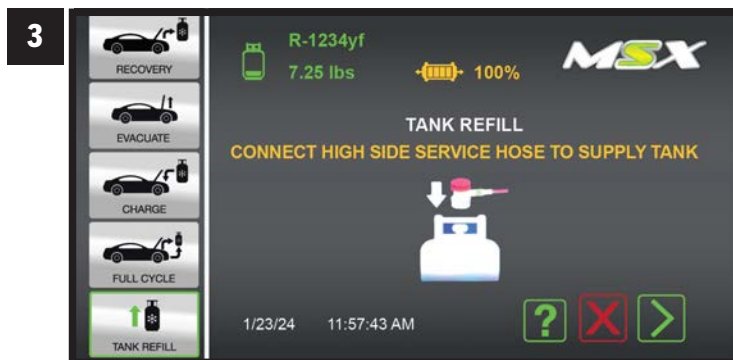
Touch  to add refrigerant to the MSX Tank.

FAILURE TO OPEN TANK VALVES WHEN INSTRUCTED WILL RESULT IN HAVING TO START OVER.




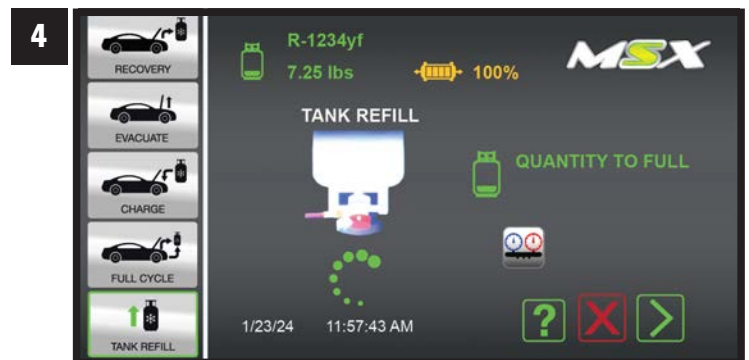
HOME ▶ TANK REFILL

Start with hoses disconnected and couplers closed. Touch  and follow the on-screen instructions.




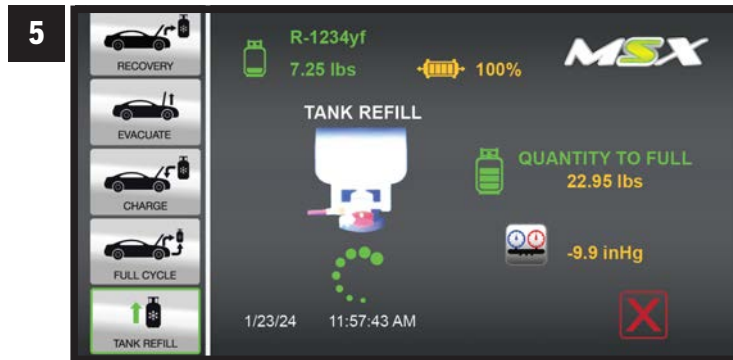
HOME ▶ TANK REFILL

Connect high side service hose to supply tank. Touch  and follow the on-screen instructions.



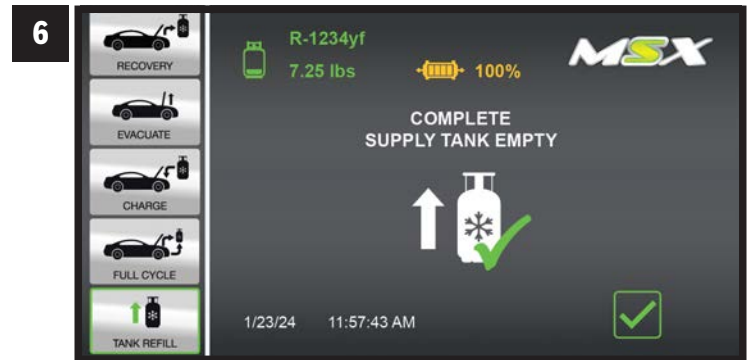
HOME ▶ TANK REFILL

Invert the supply tank (source of refrigerant for the MSX tank) so that a liquid transfer can occur. Touch  and follow the on-screen instructions.




HOME ▶ TANK REFILL

Refrigerant transfer in process (screen shows weight of refrigerant that can still be transferred to MSX tank until it is full).



HOME ▶ TANK REFILL

Refill has been completed (the MSX tank has been filled to capacity). Touch  to return to the *Home* screen.

7. A **NO PRESSURE DETECTED IN THE TANK!** message will appear. Touch *Continue* to proceed.
8. A **STILL NO PRESSURE DETECTED!** message will appear. Touch *Continue* to proceed.
9. The main menu will appear. Touch  and refer to *Refrigerant Tank Refill* for further instructions on how to fill the tank.

Maintenance

Filter/Dryer

Note: Not all screens are shown.

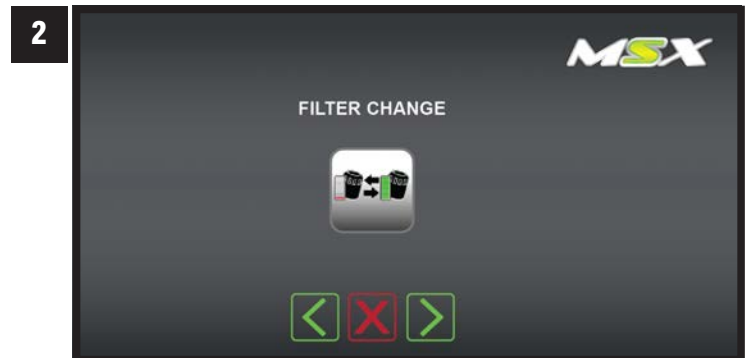
The included filter/dryer has the capacity to dry 150 lbs of recovered refrigerant. The remaining filter life is graphically displayed on the top center of the *Home* screen. When all 4 segments are no longer visible, change the filter/dryer.

Note: Refrigerant recovery cannot be performed if filter/dryer life has been exceeded.



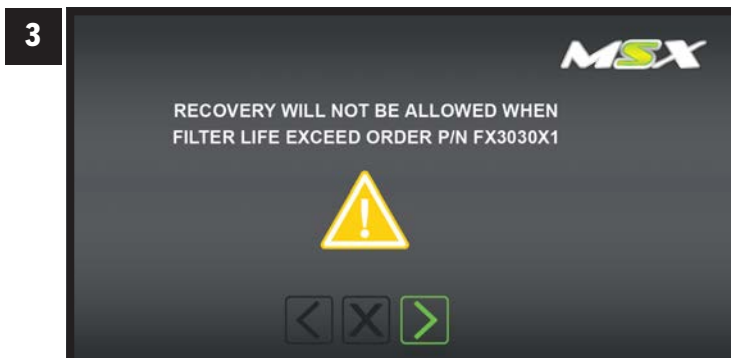
HOME ► MACHINE UPKEEP ► MAINTENANCE

Touch  to change the filter/dryer. Follow the on-screen directions and enter the *Filter Reset Code* found with the new filter/dryer.




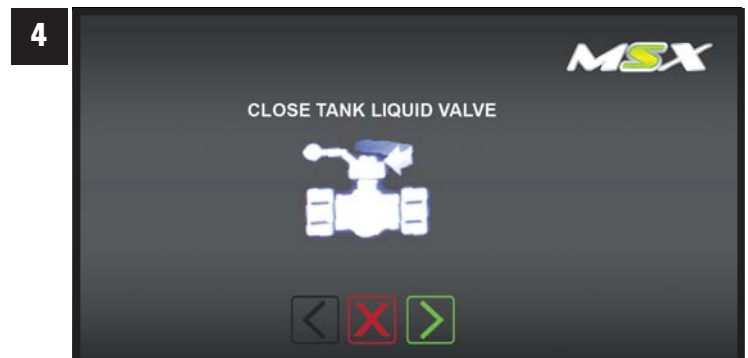
HOME ► MACHINE UPKEEP ► MAINTENANCE ► FILTER CHANGE

Touch  to change the filter/dryer.




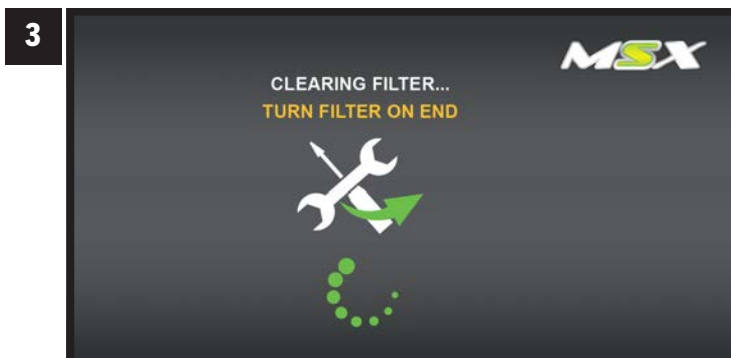
HOME ► MACHINE UPKEEP ► MAINTENANCE ► FILTER CHANGE

Refrigerant recovery cannot be performed if filter/dryer life has been exceeded. Touch  and follow the on-screen instructions.



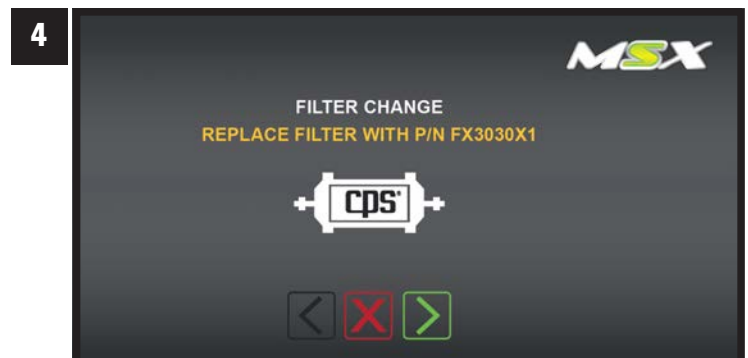
HOME ► MACHINE UPKEEP ► MAINTENANCE ► FILTER CHANGE

Close liquid valve on recovery tank ball valve. Touch  and follow the on-screen instructions.




HOME ► MACHINE UPKEEP ► MAINTENANCE ► FILTER CHANGE

Turn filter/dryer on end.




HOME ► MACHINE UPKEEP ► MAINTENANCE ► FILTER CHANGE

Replace the filter/dryer with CPS part #FX3030X1. Touch  and follow the on-screen instructions.

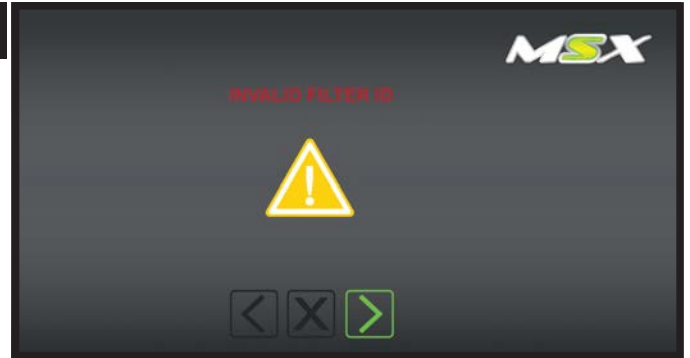
5




HOME ▶ MACHINE UPKEEP ▶ MAINTENANCE ▶ FILTER CHANGE

Using the keypad, enter the new filter/dryer ID number. Touch  and follow the on-screen instructions.

6




HOME ▶ MACHINE UPKEEP ▶ MAINTENANCE ▶ FILTER CHANGE

A notification will appear if an incorrect or invalid filter ID number has been entered. Touch  to return to the previous screen and re-enter the correct filter/dryer ID.

5



HOME ▶ MACHINE UPKEEP ▶ MAINTENANCE ▶ FILTER CHANGE

Filter/dryer replacement completes. Check or change vacuum pump oil. Touch  to return to *Home* screen.



Vacuum Pump Oil Change Frequency

CPS® recommends replacing the oil with fresh CPS® brand Premium Vacuum Pump Oil when:

- Oil becomes contaminated (condensation, particles) or is discolored.
- A 100 hour run time break-in period has been reached.
- Not running the pump for an extended time.
- Vacuum pump level is significantly higher than the rated blank-off vacuum.
- When pump no longer reaches a desired vacuum level (test with a vacuum gauge attached directly on the pump).

Depending on your oil type, application, and possible contaminants acquired when servicing A/C systems, oil change frequency may range from daily to monthly.

CAUTION: DO NOT RUN THIS MACHINE WITH LOW OR NO OIL. RUNNING THIS EQUIPMENT WITH NO OR IMPROPER OIL WILL CAUSE PREMATURE FAILURE.

Oil Change Procedure

1. Before draining the Vacuum Pump Oil from an MSX Series machine, ensure oil is warmed up. If not, run pump for 10 minutes. **Then, before draining oil, allow oil to reach room temperature.** If in doubt as to the temperature, use an infrared thermometer to check the housing temperature.
2. Turn MSX Machine OFF then **REMOVE POWER CORD FROM OUTLET.**
3. Place MSX Machine series pump over a suitable container for draining oil.
4. Remove oil drain cap, then remove oil drain plug from drain port. **AVOID CONTACT WITH HOT OIL. HOUSING COMPONENTS MAY BE HOT.** Let contaminated oil drain into suitable container. Reinstall oil drain plug.
5. Add fresh CPS® brand Premium Vacuum Pump Oil until level is between the MAX and MIN lines on the pump housing.

Premium Vacuum Pump Oil

Pro-Set® Premium Vacuum Pump Oil is an extremely high quality, severely hydro-treated vacuum pump oil and can be used in pumps made by most manufacturers. Vacuum pump oil should always be clean and free of contaminants such as moisture, acids, vapors, dirt etc., to extend the life of your pump. So, replace the oil at the appropriate interval with Pro-Set Premium Vacuum Pump oil (available in pints, quarts and gallons).



AVAILABILITY

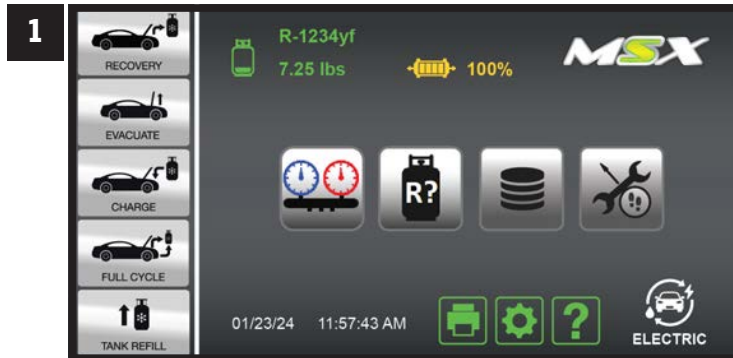
VPOG6..... (1 Gallon, 6/Case)
VPOQ12 (1 Quart, 12/Case)
VPOP12..... (1 Pint, 12/Case)

VPOG..... (1 Gallon)
VPOQ..... (1 Quart)
VPOP..... (1 Pint)

Refrigerant Change

Note: Not all screens are shown.

The **Refrigerant Change** function allows users to switch between R-134a and R-1234yf refrigerant types; specific to that used in the vehicle.



HOME

From the *Home* screen, touch to access *Machine Upkeep*.



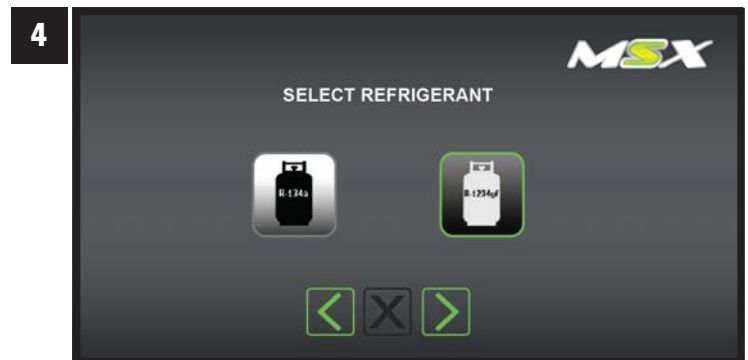
HOME ► MACHINE UPKEEP

Touch *Maintenance*.



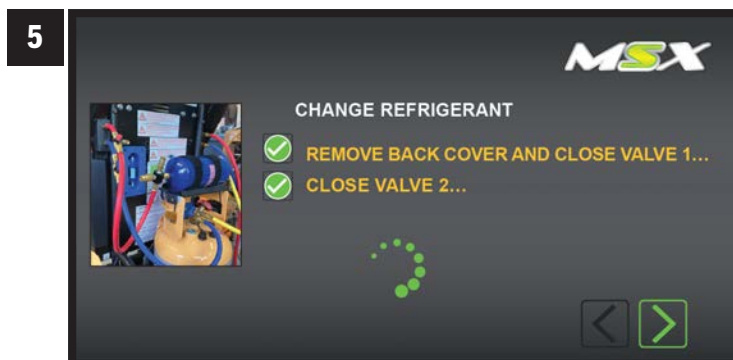
HOME ► MACHINE UPKEEP ► MAINTENANCE ► REFRIGERANT CHANGE

Touch *Refrigerant Change*.



HOME ► MACHINE UPKEEP ► MAINTENANCE ► REFRIGERANT CHANGE

Touch to select refrigerant type: R-134a or R-1234yf



HOME ► MACHINE UPKEEP ► MAINTENANCE ► REFRIGERANT CHANGE

Follow the onscreen instructions to close both valves 1 and valves 2. The MSX will indicate when complete.

Touch to move to next screen.



HOME ► MACHINE UPKEEP ► MAINTENANCE ► REFRIGERANT CHANGE

After a 3 – 5 minute purge/deep vacuum to remove any remaining trace of the refrigerant, you will be prompted to replace tank.

Refrigerant Change (continued)

7



Disconnect Tank

Once the the refrigerant is purged, disconnect the tank from the MX3030 unit. Using a Philips head screwdriver, remove the hose bracket cover located on the left-side of the back of the unit.



Using a $\frac{9}{16}$ " wrench, disconnect both the tank's liquid feed hose (red) and vapor return hose (blue) from the unit.

8



Connect New Hoses to Unit and Tank Filter Bracket

After the old tank has been removed, use a $\frac{9}{16}$ "wrench to connect the new hoses to the $\frac{1}{4}$ " SAE Male brass fittings located on the left side of the unit (red hose on top, blue hose on bottom).

Next, attach the red hose to the filter bracket and the blue hose to the new tank. Open all valves to check for leaks. *CPS is not responsible for lost refrigerant.*

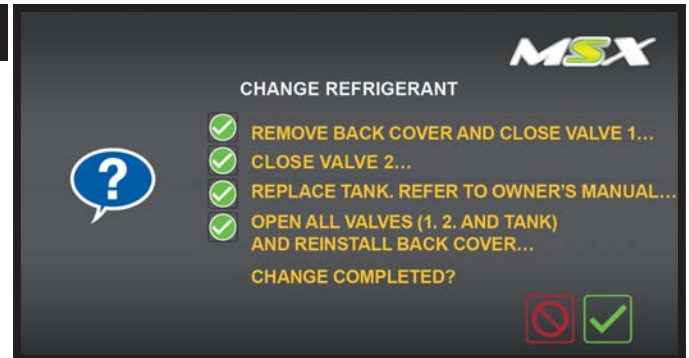
9




Replace the Service Hoses

Service hoses are located on the right-side of the back of the unit, again, red (top), blue (bottom). Using a Philips head screwdriver, remove the hose bracket cover. Disconnect the service hoses with a $\frac{9}{16}$ " wrench and attach the new service hoses. Once attached, re-install hose bracket cover.

10



Refer back to screen as the unit goes through the refrigerant identification process to ensure proper changeover. Touch  to confirm all steps have been completed so the unit can run through the refrigerant identification process.

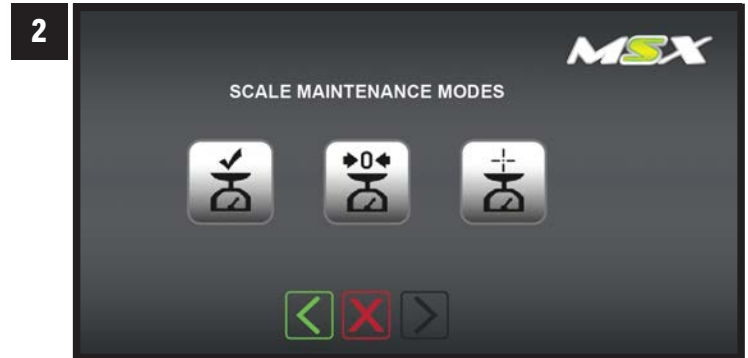
Note: The scale is powered by the MSX Series machine (no batteries to replace)

Scale calibration is suggested only if the calibration test was off by more than .02 lbs. Calibration may be performed by a CPS authorized service center. CPS Technical Support can also assist with the process. Scale calibration requires a certified 25 lb weight.



HOME ► MACHINE UPKEEP ► MAINTENANCE

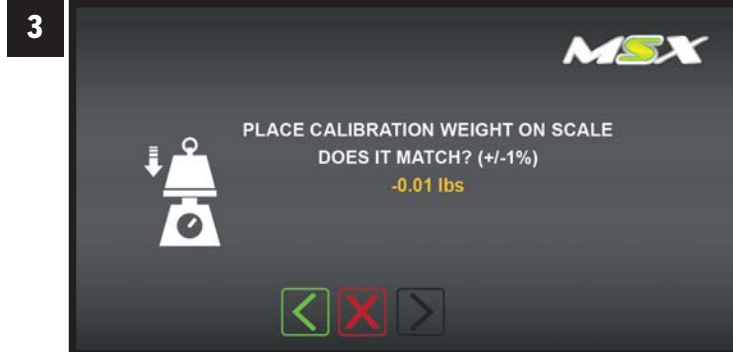
From the *Home* screen, touch  to access the *Machine Upkeep* screen. Touch *Maintenance*  and then . Touch  to continue to the next screen.




HOME ► MACHINE UPKEEP ► MAINTENANCE ► SCALE

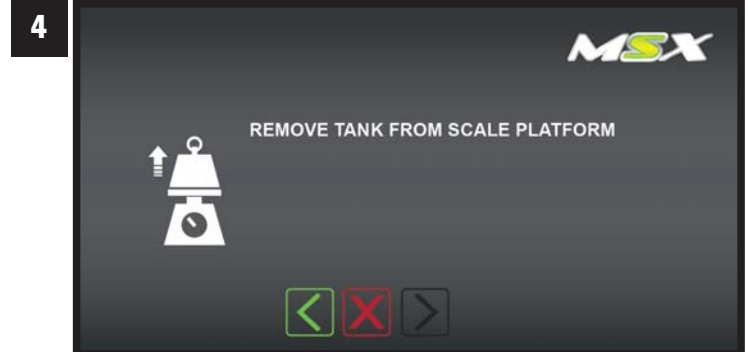
There are three scale maintenance modes to choose from (icons pictured from left to right).

1. Check calibration
2. Tare (zero) the scale
3. Scale calibration (by CPS Products only)






HOME ► MACHINE UPKEEP ► MAINTENANCE ► SCALE ► CALIBRATION

To check calibration, set the included 1 lb weight on the scale to calibrate. If the scale's weight is within $\pm 1\%$ of 1 lb (0.99 – 1.01 lbs), touch .



HOME ► MACHINE UPKEEP ► MAINTENANCE ► SCALE ► TARE

To tare (zero) the scale, start by removing the refrigerant tank from the scale platform. Touch  to continue to the next screen. Touch  to reset the empty tank weight to zero. Touch  to move to next screen.

Pressure Transducer

Note: Not all screens are shown.

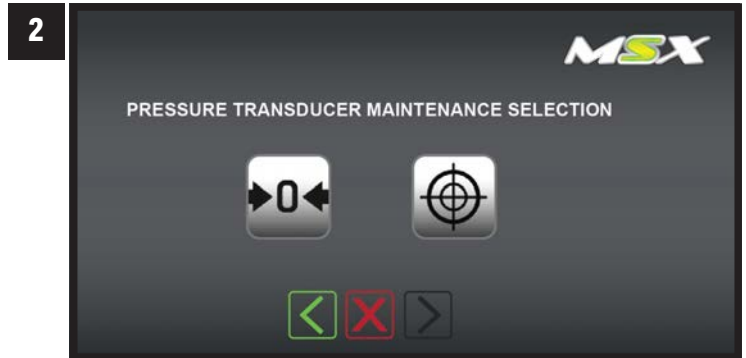
The internal pressure transducers are used during recovery, vacuum, air purge and in the manifold mode. Access this menu if you suspect the internal pressure transducer readings are inaccurate.

- Calibration will require a certified pressure source above 70 PSIG.
- Follow the displayed direction for the select transducer maintenance function.



HOME ► MACHINE UPKEEP ► MAINTENANCE

From the *Home* screen, touch to access the *Machine Upkeep* screen. Touch *Maintenance* and then on the *Maintenance* screen, touch for *Pressure Transducer*.

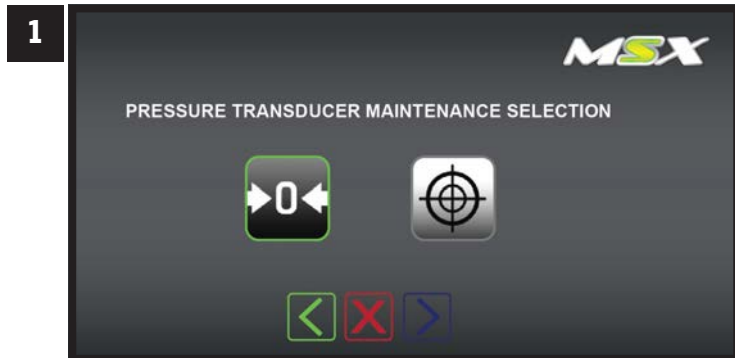


HOME ► MACHINE UPKEEP ► PRESSURE TRANSDUCER

Select *Tare* or *Calibrate*.

Tare (Zero)

Note: Not all screens are shown.



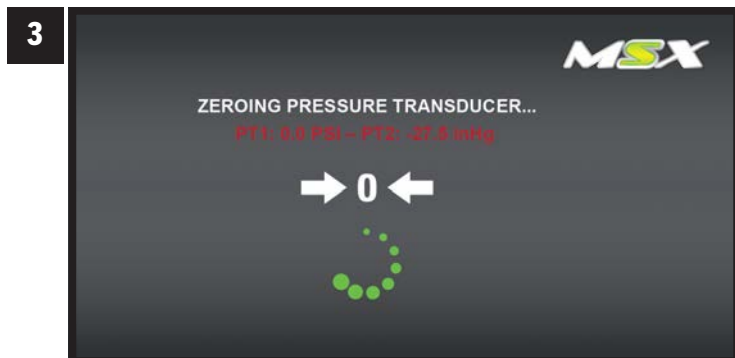
HOME ► MACHINE UPKEEP ► PRESSURE TRANSDUCER

Touch to tare (zero out) the pressure transducer.



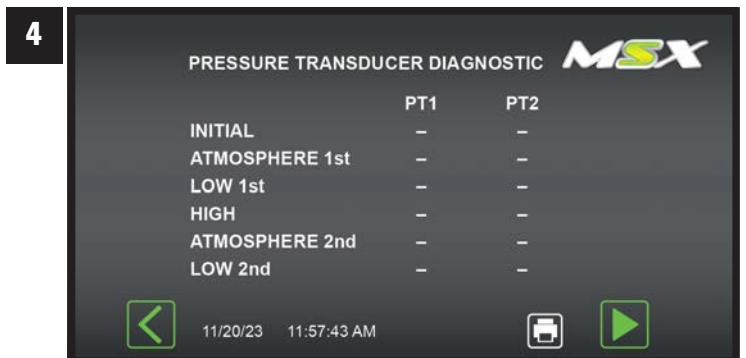
HOME ► MACHINE UPKEEP ► PRESSURE TRANSDUCER ► TARE

Wait while PT1 zeros out.



HOME ► MACHINE UPKEEP ► PRESSURE TRANSDUCER ► TARE

Wait while PT2 zeros out.



HOME ► MACHINE UPKEEP ► PRESSURE TRANSDUCER ► TARE

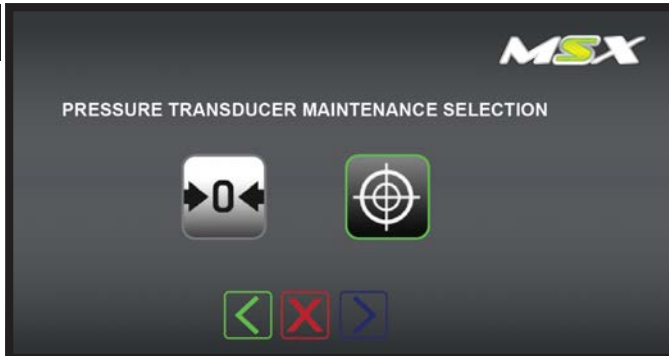
Chart will populate with pressure transducer diagnostics.

Pressure Transducer (continued)


Calibrate

Note: Not all screens are shown.

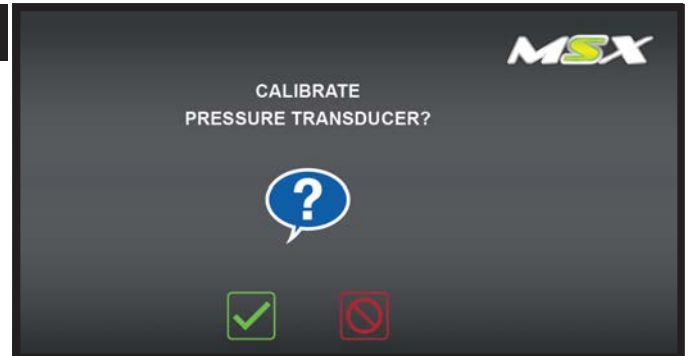
1



HOME ▶ MACHINE UPKEEP ▶ PRESSURE TRANSDUCER

Touch  to calibrate the pressure transducer.

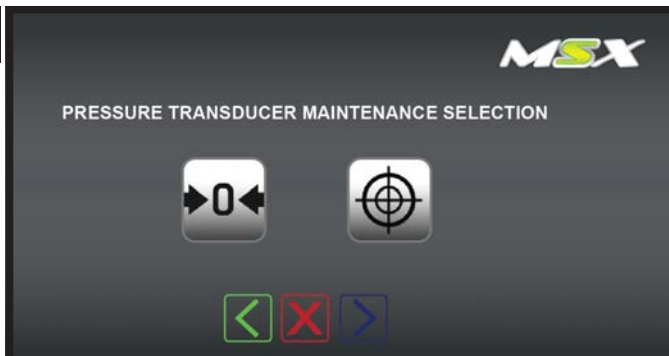
2




HOME ▶ MACHINE UPKEEP ▶ PRESSURE TRANSDUCER ▶ CALIBRATE

Touch  for *Help* or  to proceed.

3



HOME ▶ MACHINE UPKEEP ▶ PRESSURE TRANSDUCER ▶ CALIBRATE

Touch  to proceed to the next Maintenance step.

This mode should only be entered with direction by CPS Products Technical Support or by a CPS Authorized Service Center.

The MSX Series features automatic air purge at machine start up. Air purge may also be selected in the *Maintenance* mode. This mode enables the testing of each device controlled by the MSX Series computer.

These devices include the ball valves, vacuum pump, compressor and pressure transducers. Air Purge reduces “non-condensable gases” in the storage tank to an acceptable level and may take a few minutes to complete.

DO NOT TURN THE MACHINE OFF OR UNPLUG THE MACHINE DURING AN AIR PURGE CYCLE.



HOME ► MACHINE UPKEEP ► MAINTENANCE

From the *Home* screen, touch  to access *Machine Upkeep*. Touch *Maintenance*  then *Air Purge* .



HOME ► MACHINE UPKEEP ► AIR PURGE

The MSX will check the refrigerant tank pressure.



HOME ► MACHINE UPKEEP ► AIR PURGE

The machine will begin the automated air purge process. When complete, you will be returned to the main *Maintenance* screen.

Diagnostics

Note: Not all screens are shown.

This features allows the diagnostics of individual valves, controls, scale, tank, etc.



HOME ► MACHINE UPKEEP ► MAINTENANCE

From the **Home** screen, touch to access **Machine Upkeep**. Touch **Maintenance** then select .



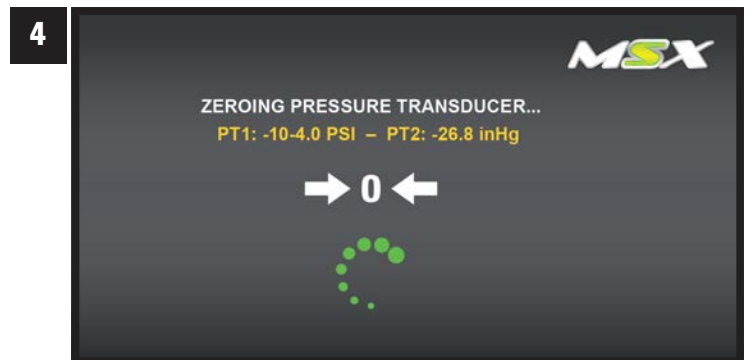
HOME ► MACHINE UPKEEP ► VALVES & CONTROLS

Displayed are a list of valves, controls, PT, scale, etc., for diagnostics. Select desired valve(s) or control(s) for individual diagnostics.



HOME ► MACHINE UPKEEP ► VALVES & CONTROLS

Or, select PT1 or PT2 for diagnostics.



HOME ► MACHINE UPKEEP ► VALVES & CONTROLS

Zeroing PT1 & PT2.

Field Software Upgrade

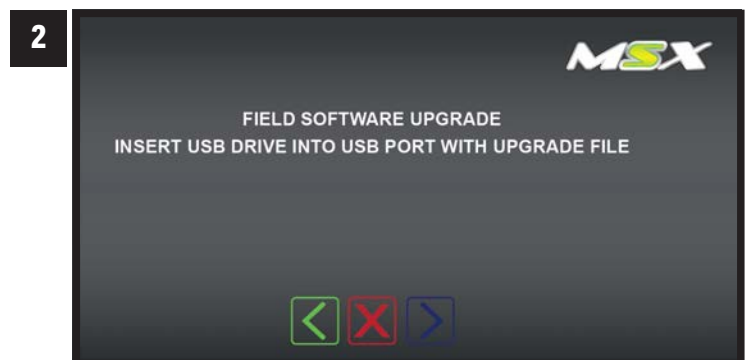
Note: Not all screens are shown.

Use this mode to update the MSX Series system software. The latest MSX Series firmware can be downloaded at: <https://www.cpsproducts.com/support/firmware-updates/>. Select the MSX Series model and follow the instructions:



HOME ► MACHINE UPKEEP ► MAINTENANCE

From the **Home** screen, touch to access **Machine Upkeep**. Touch **Maintenance** then **Software Upgrade** .



HOME ► MACHINE UPKEEP ► MAINTENANCE ► SOFTWARE UPGRADE

To upgrade software in the field, insert a USB drive with upgraded file into USB port located on the control panel. **Power must remain on during this operation.** After software is loaded, touch to move to the next screen.

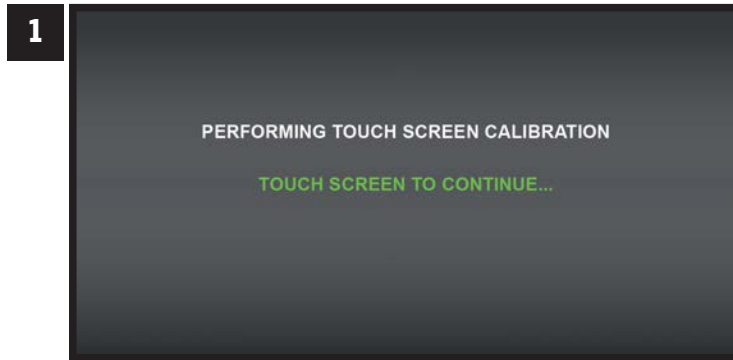
Touch Screen Display Calibration

Note: Not all screens are shown.

Under certain conditions, the touch screen may lose its calibration (i.e. touches on the screen don't result in the desired result). When touching a screen function key, if it does not actuate the function, or engages an adjacent function, the screen needs to be calibrated.

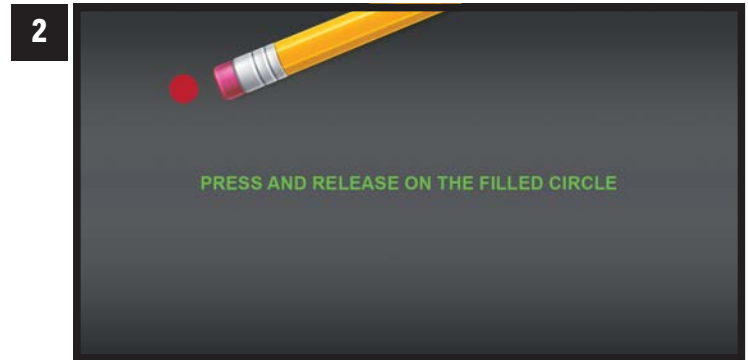


- Turn the machine's power off.
- While pressing and holding any spot on the touch screen, turn the power back on.
- A screen **SETUP** menu will be displayed.
- Select **Screen Calibration** and follow the on-screen directions.
- Calibration is then complete.



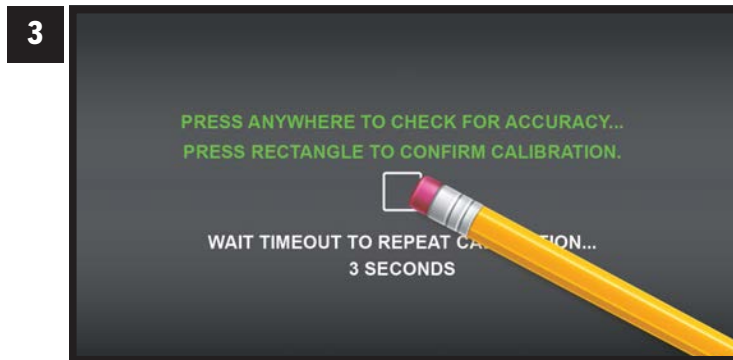
SETUP ▶ SCREEN CALIBRATION

Touch screen to continue.



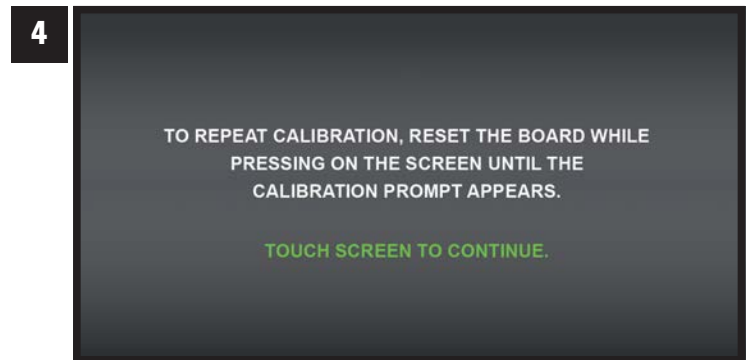
SETUP ▶ SCREEN CALIBRATION

The MSX will ask you to touch and release a series of filled circles (appearing in red) on the screen.



SETUP ▶ SCREEN CALIBRATION

Touch anywhere to check for accuracy. Touch rectangle to confirm accuracy. Wait time-out to repeat the calibration.





SETUP ▶ SCREEN CALIBRATION

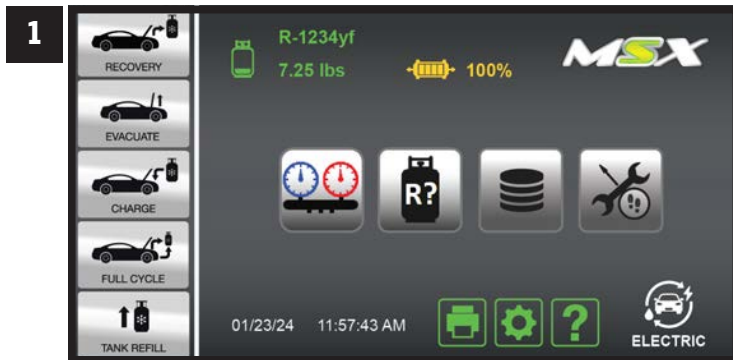
To repeat calibration, reset the board while touching the screen until calibration prompt appears.

Car System Health Mode


Note: Not all screens are shown.

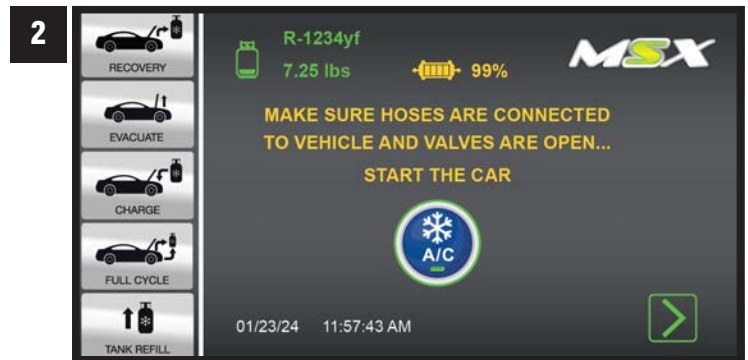
Use this mode for checking system pressures and vent temperature before and after servicing the AC system. System parameters can be printed while in this mode to provide a before and after comparison. When entering the Car Health mode, the machine will provide a prompt to start the vehicle's A/C system. Readings can then be collected and printed.

If Refrigerant Recovery is planned next, touch . This will return users to the **Home** screen. If all is well, touch  and the machine will guide users through clearing the hoses of refrigerant back into the AC system.



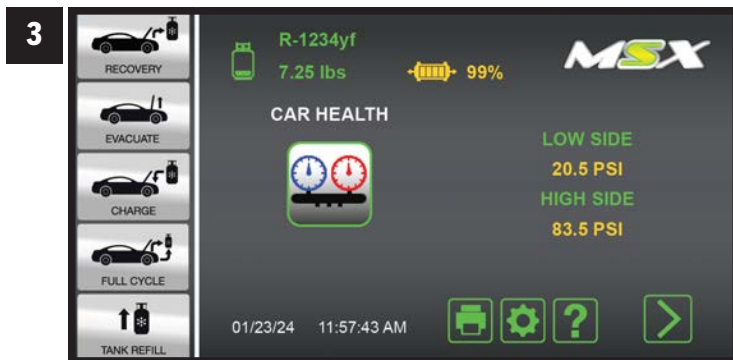
HOME

From the **Home** screen, touch  to view vehicle's A/C system low and high side pressures, and probe temperature (if used).




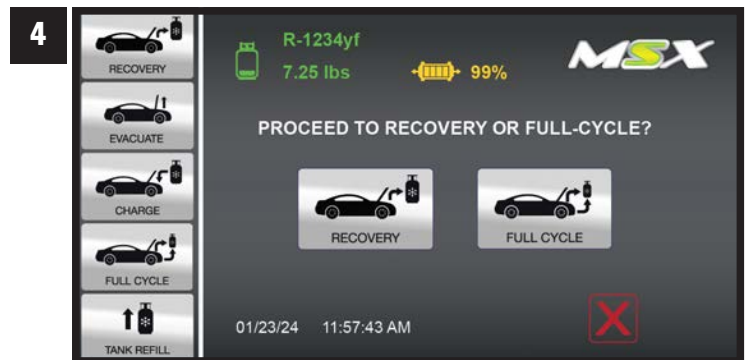
HOME ▶ CAR SYSTEM HEALTH

Make sure hoses are **connected** to vehicle and valves are **open**. Start the vehicle.



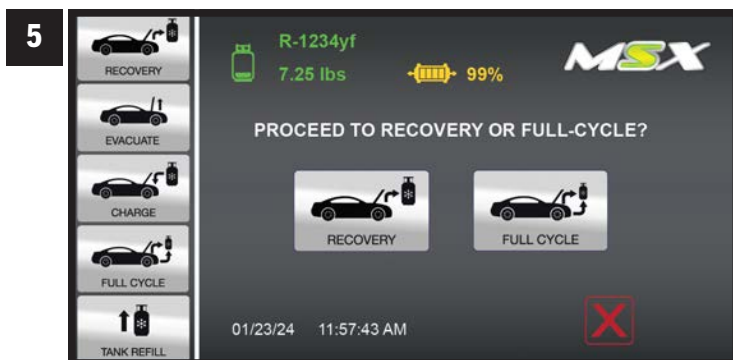
HOME ▶ CAR SYSTEM HEALTH

Ambient high side pressure and low side pressure shown. Touch  to proceed to next screen.



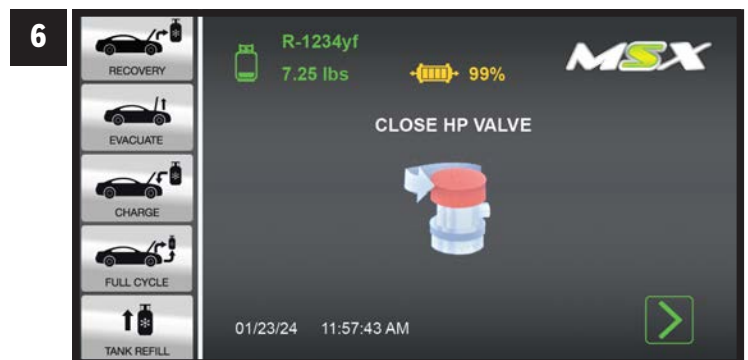
HOME ▶ CAR SYSTEM HEALTH

Select **Recovery** or **Full Cycle**.



HOME ▶ CAR SYSTEM HEALTH

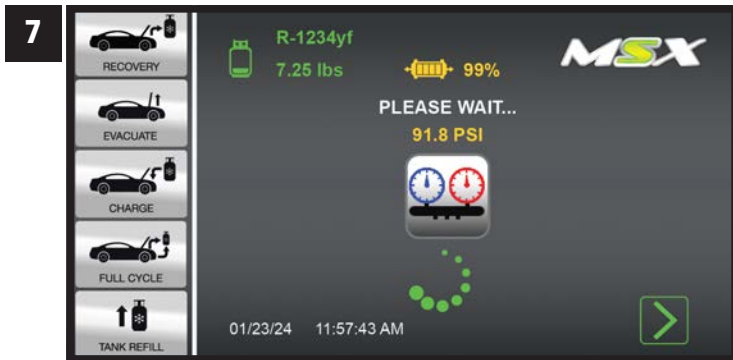
Touch  to proceed to **Recovery** or **Full Cycle**.



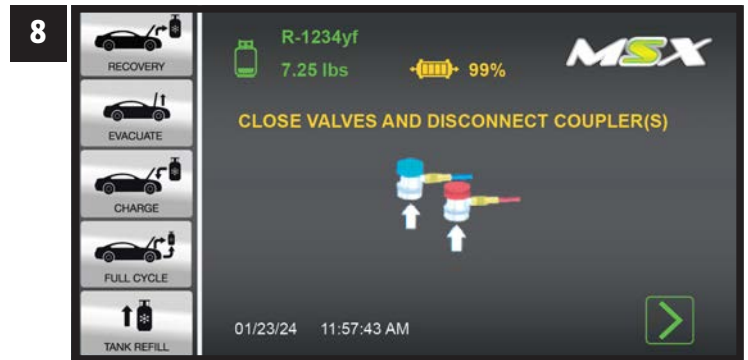
HOME ▶ CAR SYSTEM HEALTH

Close high pressure valve.

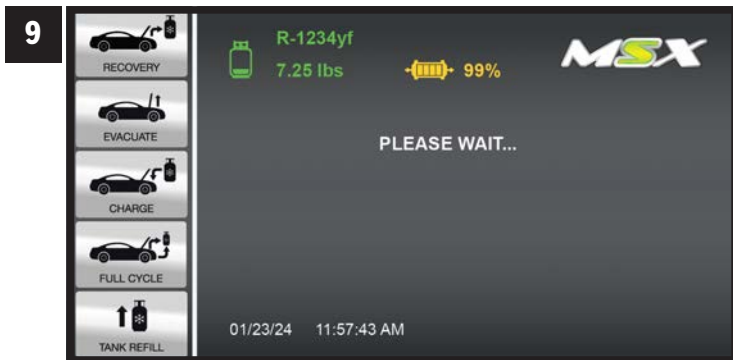
Car System Health Mode (continued)



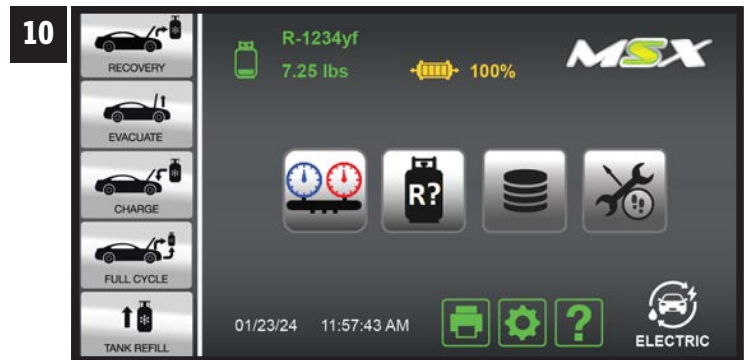
HOME ► CAR SYSTEM HEALTH
Wait.



HOME ► CAR SYSTEM HEALTH
Close valves and disconnect couplers.



HOME ► CAR SYSTEM HEALTH
Wait.



HOME ► CAR SYSTEM HEALTH
Return to *Home* screen

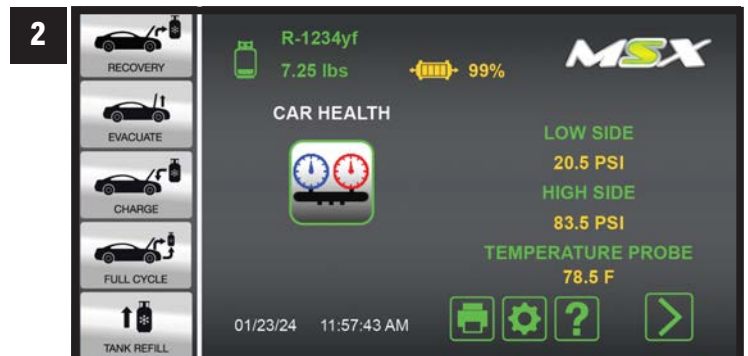
Corded Temperature Probe (Included)

The included corded temperature probe #TMX2P has a 15' (4.5m) reach and is commonly used to measure vent or liquid temperatures in vehicles. It has an operating temperature range of -40°F to 257°F / -40°C to +125°C.

CAUTION: Keep metal portion of probe away from any moving or electrical parts.



At any time, plug the end of the corded temperature probe into the RCA jack on the front of the MX control panel. Insert the probe-end into a vehicle A/C vent or any other location where a temperature reading is needed.



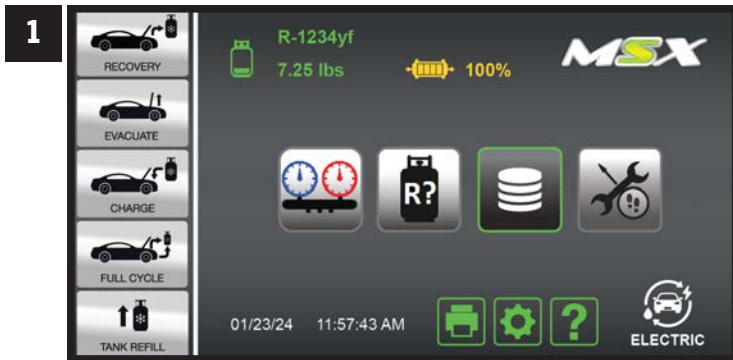
HOME ► CAR SYSTEM HEALTH
View the resulting temperature in *Car System Health* or *Valves & Controls*.

A/C Database for North American Vehicles


Note: Not all screens are shown.

The North American Vehicle A/C Database includes information such as type and weight of all refrigerants/oil used in vehicles sold in North America since 1994. To use, insert the included SD Card (Secure Digital Memory Card) into the back of the MXHD Machine. An “End User License Agreement” (see APPENDIX in this manual) will appear on the MXHD color screen.

By accessing this North American Vehicle A/C Data Base, you consent to all the terms and conditions of this agreement. If you do NOT agree to all terms and conditions, do NOT access or use the databases.




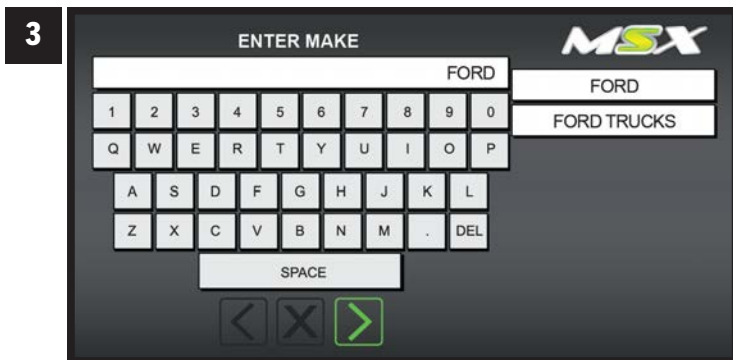
HOME

From the *Home* screen, touch .




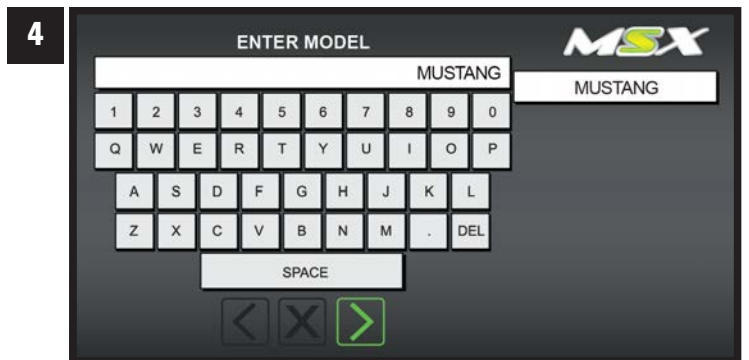
HOME ► A/C DATABASE

Use keypad to enter *Year* vehicle was made. Touch  to enter data and proceed to next screen.




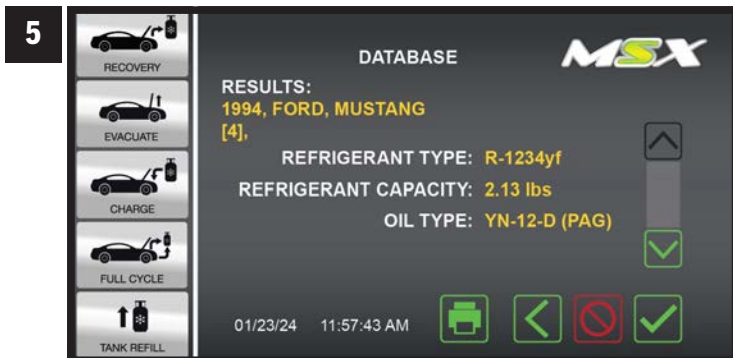
HOME ► A/C DATABASE

Enter vehicle *Make* (Brand). Touch  to enter data and move to next screen.




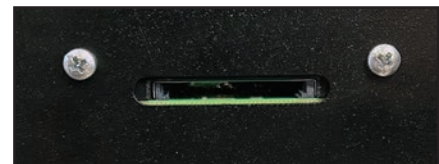
HOME ► A/C DATABASE

Enter vehicle *Model* name. Touch  to enter data and move to next screen.



HOME ► A/C DATABASE

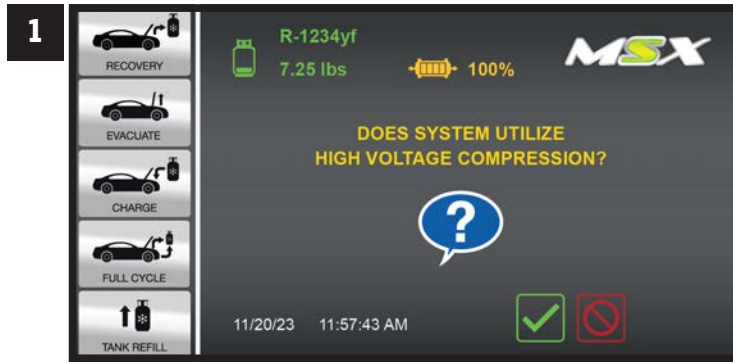
A/C Database will provide *Refrigerant Type*, *Refrigerant Capacity*, and *Refrigerant Oil Type*. If information shown is OK, touch  to enter data and move to next screen.






SD card slot is located on the back of the MSX machine.

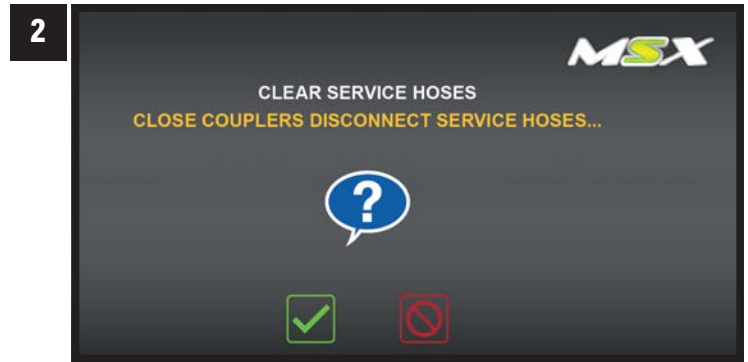
Flush Refrigerant Hoses

Note: Not all screens are shown.




HOME ► HYBRID

From the **Home** screen, touch  if the vehicle is Hybrid/Electric to flush service hoses. Touch  to continue. If machine is in Non-SAE mode, touch  to flush service hoses.

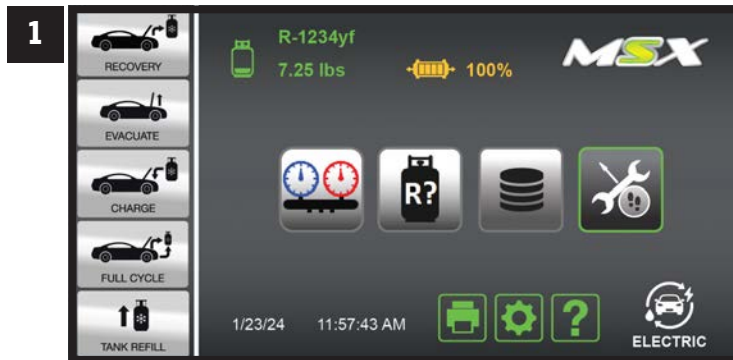


HOME ► HYBRID

To clear service hoses (of refrigerant), close couplers and disconnect service hoses, then touch  to continue. The **Home** screen will appear after the clearing process has been completed.

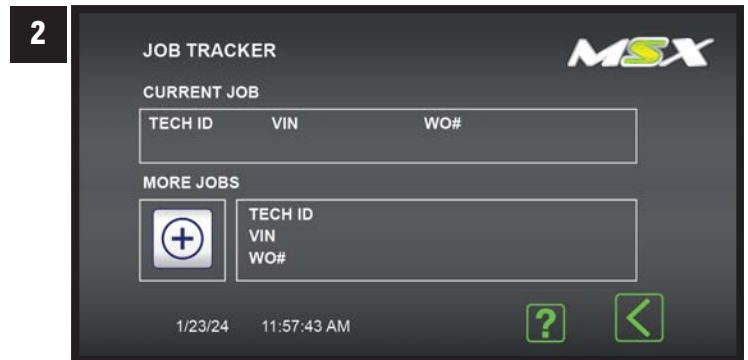
Job Tracker

Note: Not all screens are shown.



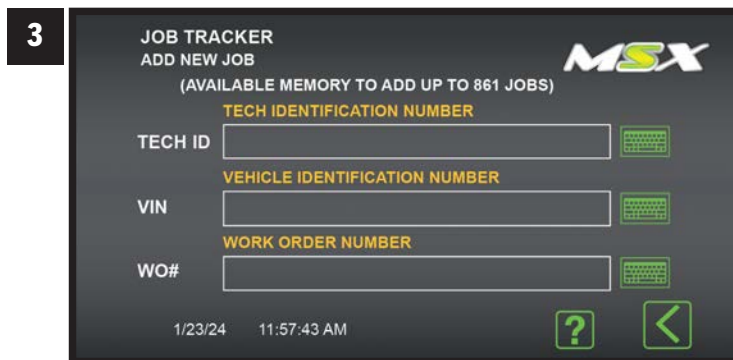
HOME

Touch  on the **Home** screen.





HOME ► JOB TRACKER








































If current job data was previously entered, it will appear in top portion of screen. Touching the "+" icon brings up the next screen. Enter your shop password.















































HOME ► JOB TRACKER











































Touch  to enter data for each field. Touch  to proceed to next screen.




































Appendix (Complete Icon Library)

Icon Name	Description	Off/On
AIR PURGE	Touch to select AIR PURGE	 
AMERICAN	Touch to select AMERICAN Units	 
BAR	Touch to select BAR	 
BOTH COUPLERS	Touch to select BOTH couplers	 
° C	Touch to select CELSIUS	 
CALIBRATION	Touch to select CALIBRATION	 
CAR SYSTEM HEALTH MODE	Touch to launch CAR SYSTEM HEALTH MODE	 
CHANGE TANK	The CHANGE TANK icon notifies the user to change the tank	
CHANGE UOM	Touch to change the unit of measurement	 
CHARGE	Touch to perform a CHARGE service	
CHARGE COMPLETE	Indicates that the CHARGE service is COMPLETE	
CHARGE LOW SIDE	Press to select Low Side Charging	 
CHECK SCALE COMPLETE	The SCALE CHECK COMPLETE notifies users that a scale check is complete	 
CLOSE BALL VALVE	Press to close ball valve	 
CLOSE COUPLER	The CLOSE COUPLER icon notifies the user to close the coupler during a recharge service	
CLOSE HP	Notifies the user to CLOSE HP valve during a CHARGE service	
CLOSE VALVE	Notifies user to CLOSE VALVE	
CONNECT HP	Notifies user to connect HP port during tank refill	
CPS FILTER	CPS FILTER	 
DISCONNECT COUPLERS	Notifies the user to DISCONNECT COUPLERS	
DRAIN OIL	The DRAIN OIL icon notifies the user that oil is draining from the vehicle	
END-USER AGREEMENT	Touch to access the End-User License Agreement	 
ERROR	Displays when there is an ERROR	 
° F	Touch to select FARENHEIGHT	 

Icon Name	Description	Off/On
FAILED	Indicates that a given operation FAILED	
FILTER	Displays the current status of the filter life.	
FILTER CHANGE	Displays when a filter change is required	
FILTER CHANGE	Touch to CHANGE FILTER	 
FILTER CHANGE	Touch to CHANGE FILTER	 
FULL CYCLE COMPLETE	Indicates that the FULL CYCLE service is COMPLETE	
GRAMS	Touch to select GRAMS as UOM	 
HELP	Touch to launch the HELP Menu	 
HELP	Provides Firmware version	
HIGH COUPLER	Touch to select the HIGH SIDE coupler only	 
HOME	Touch to launch the HOME screen	 
INJECTION	Notifies the user to INJECT oil and/or dye at this point in the service	
INTERNATIONAL	Touch to select INTERNATIONAL UOM	 
KGCM2	Touch to select KGCM2	 
KGS	Touch to select KGS as UOM	 
KPA	Touch to select KPA	 
LANGUAGE	Touch to select LANGUAGE	 
LBS	Touch to select LBS as UOM	 
LBS:OZ	Touch to select LBS:OZ as UOM	 
LOW COUPLER	Touch to select the LOW SIDE coupler only	 
MAINTENANCE	Touch to launch the MAINTENANCE menu	 
METRIC	Touch to select METRIC UOM's	 
MPA	Touch to select MPA	 
NOT NOW	Touch to postpone suggested operation	 
OPEN BALL VALVE	Press to Open Ball Valve	 

Appendix (Complete Icon Library) (continued)

Icon Name	Description	Off/On
OZ	Touch to select OZ as UOM	 
PLACE WEIGHT	Notifies user to PLACE WEIGHT on the scale	
PRINT	Touch to PRINT a report of the service	 
PSIG	Touch to select PSIG	 
PT	Touch to select PRESSURE TRANSDUCER	 
PURITY	PURITY	 
QUIT	Touch to quit the current function	 
R-1234yf	Touch to select R-1234yf Refrigerant	 
R-134a	Touch to select R-134a Refrigerant	 
R22	Touch to select R22 Refrigerant	 
R407	Touch to select R407 Refrigerant	 
RECOVERY	Touch to perform an RECOVERY service	
RECOVERY COMPLETE	Indicates that the RECOVERY service is COMPLETE	
REFRIGERANT	REFRIGERANT	
REFRIGERANT CHANGE	Touch to CHANGE REFRIGERANT	 
REGISTER	Touch to REGISTER unit	 
RELAY	Touch to select RELAY	 
REMOVE WEIGHT	Notifies user to REMOVE WEIGHT from scale	
SAE	Touch to select SAE	 
SAE CHARGE	Touch to perform a SAE CHARGE service	
SAE CHARGE COMPLETE	Indicates that the SAE CHARGE service is COMPLETE	
SCALE	Touch for SCALE functions	 
SCALE CHECK	Touch to perform SCALE CHECK	 
SCALE CHECK	The SCALE CHECK icon notifies users that a scale check is in progress	
FULL CALIBRATION	Touch to perform full calibration	 

Icon Name	Description	Off/On
SCALE ZERO	Touch to RE-ZERO the scale	 
SERVICE	Touch to select SERVICE	 
SERVICE HOSES BEING FLUSHED	Indicates that the SERVICES HOSES are BEING FLUSHED	 
SET TIME	Touch to SET TIME	 
SETTINGS	Touch to launch the SETTINGS screen	 
SETUP	Touch to launch the SEUP menu	 
SPEAKER	Touch to enable sound	 
START AC	Notifies user to start vehicle and turn on AC during service	
TANK	Indicates the level of refrigerant in the TANK	
TANK FULL	Notifies user that TANK is FULL	
TANK REFILL	Touch to perform a TANK REFILL	
TANK TARE SETUP	Press to change tank weight and WC	 
TANKS REFILL COMPLETE	Indicates that the TANK REFILL is COMPLETE	
TURN UPSIDE DOWN	Notifies user to TURN TANK UPSIDE DOWN during tank refill	
UNIT	Touch to select UOM	 
UPDATE	Touch to UPDATE	 
UPGRADE	Touch to select UPGRADE	 
UPKEEP	Touch to launch the UPKEEP menu	
VACUUM	Touch to perform a VACUUM service	
VACUUM COMPLETE	Indicates that the VACUUM service is COMPLETE	
WARNING	The WARNING icon appears to caution users of a potential hazard	
WEIGHT	Touch to Choose WEIGHT UOM	 
ZERO	Touch to RE-ZERO the pressure transducer	 
ZEROING	Indicates that the unit is ZEROING	

Error Codes

Error Code	Description
E1-BAD TXT EPROM	Scale is bad
E2-SCALE ADC	Connection to the scale electronics lost
E3-SCALE EPROM	Scale not calibrated
E4-CANNOT CAL	Scale cannot be calibrated or bad calibration
E5-MBV FAULT: X	Where X is a number from 1 to 5 indicating which MBV has failed
E6-AMB. THRM	Ambient thermistor in the “head” is bad
E7-TNK THRM	Thermistor attached to the oil separator is bad
E8-PT TRANS	Pressure transducer is bad
E9-WEAK BATT	Should never appear
E10-BAD FILTERTIME	Filter code problems
E11-DEFAULTS NOT SET	Defaults are not set
E12-BAD GRAPH MEM	Problems with graphics like Chinese and Russian
E13-BAD PTR. TO INFO MEM	Major software corruption, fatal error
E15 FLOW SWITCH ERROR	Air flow switch is open
UNKNOWN ERROR	Cause of problem cannot be identified

Identifier Codes

Identifier Code	Description	Solution
“00001” Error #1	The air or gas readings were unstable.	Move the unit away from sources of EMF or RFI such as radio transmitters and arc welders.
“00002” Error #2	The air or gas readings were excessively high.	
“00003” Error #3	The air calibration resulted in a low output.	Prevent refrigerant from flowing into the unit through the sample inlet during air calibration. Allow any refrigerant in the atmosphere to dissipate before performing air calibration. Verify that the air intake and the exhaust are not obstructed. Verify that the white filter is correctly plugged into the rubber grommets.
“00004” Error #4	The unit is beyond the operating temperature range.	Move the unit to an area where the ambient temperature is within the specified operating range.
“00005” Error #5	The refrigerant sampled has an excessively large amount of air or there was little or no sample flow due to a closed valve or plugged sample filter. This is the code to prompt the user to change the brass filter. This should be considered more as a prompt than an actual error.	Verify the coupler valve is open. Verify the sample filter is not plugged with debris or oil. Replace brass sample filter. Verify that the white filter is correctly plugged into the rubber grommets.
“00006” Error #6	The air sensor has expired and must be replaced before the analyzer can be used.	Replace air sensor.
“00007” Error #7	The pressure read by the sensor has been determined to be too high.	Verify the exhaust is not obstructed.

Replacement Parts

Part Number	Description
FX3030X1	FX Series Maintenance Kit—Filter, Vacuum Pump oil and Coupler O-rings
QCL134	Auto Coupler Brass Low Side 14mm
QCH134	Auto Coupler Brass High Side 14mm
AR2788X14A	R134a Refill Hose Adaptor 1/2 ACME
AR2788X14B	R134a Refill Hose Adaptor 1/4 SAE
CRX430T	30 lb 400psi Recovery Tank
CRX400T	50 lb 400psi Recovery Tank
481500 / 481500YF	Spotgun® Oil Injection Kit

MAXXAIR™ Warranty

TWO-YEAR FULL COVERAGE WARRANTY

CPS Products Inc (herein CPS), warrants this MSX series machine to be free from defects in materials, workmanship, and components for 2 Years from the date of purchase. If equipment should fail during the warranty period, it will be repaired at no charge to the original owner. Any parts or labor required to repair a defective machine or components covered under the warranty will be covered at no charge to the original purchaser of the machine.

Two Year Parts Warranty: Through the end of Year 2, CPS will repair or replace (at our option) any parts that are found to be defective.

Restrictions that apply to this limited warranty:

- i. This machine must be used in normal use situations only (as described in this Owner's Manual).
- ii. This limited warranty does NOT apply if: This machine, or a product part is broken by accident; this machine is misused, tampered with or modified in any way; this machine is used for recovering or recycling any substance other than the specified refrigerant type.
- iii. This machine must be serviced and maintained as specified in this Owner's Manual.
- iv. All warranty service claims must be made within the specified warranty periods mentioned above. Proof-of-purchase date by the original owner must be supplied.
- v. Warranty or service claims are subject to authorized inspection for product defect(s).
- vi. At the discretion of CPS, any part that fails or must be repaired within the warranty period, may be a new or reconditioned part.
- vii. At the discretion of CPS, if this machine fails or must be repaired within the warranty period, will be repaired or replaced with a different reconditioned machine.
- viii. All repaired equipment will carry an independent 90 day warranty.
- ix. Transportation charges for warranty service will be reimbursed by CPS upon verification of the warranty claim and submission of a freight bill for normal ground service. Approval from CPS must be obtained prior to shipping to a CPS authorized service center.
- x. CPS shall not be responsible for any additional costs associated with a product failure including, but not limited to, loss of work time, loss of refrigerant, cross-contamination of refrigerant, and unauthorized shipping and/or labor charges.
- xi. Use of recovery/recycling equipment with unauthorized refrigerants or sealants voids this warranty.
- xii. Authorized refrigerants are listed on the equipment or are available through the CPS Technical Service Department.
- xiii. CPS is not responsible for lost refrigerant. Owners should leak test this machine regularly and store this machine with all valves closed.

This warranty does not apply to equipment that has been altered, misused or solely in need of field service maintenance. This repair policy does not include equipment that is determined to be beyond economical repair.

WARRANTY VOIDED IF MACHINE USED FOR ANY OTHER PURPOSE.

A/C Database End-User License Agreement

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4. **DISCLAIMER OF WARRANTIES, LIABILITY.** MOTOR FURNISHES THE DATABASES ON AN “AS IS” BASIS AND WITHOUT ANY WARRANTY. MOTOR DOES NOT WARRANT THAT USE OF THE DATABASES WILL BE UNINTERRUPTED OR ERROR FREE, OR WILL MEET YOUR REQUIREMENTS. MOTOR SPECIFICALLY EXCLUDES AND DISCLAIMS ALL WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS AND ANY WARRANTY THAT MAY ARISE BY REASON OF TRADE USAGE, CUSTOM OR COURSE OF DEALING AND YOU HEREBY EXPRESSLY WAIVE ANY AND ALL SUCH WARRANTIES. YOU ASSUME THE ENTIRE RISK AS TO RESULTS AND PERFORMANCE OF THE DATABASES. UNDER NO CIRCUMSTANCES SHALL MOTOR BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, ARISING OUT OF OR IN ANY WAY RELATED TO THIS AGREEMENT OR THE DATABASES. SUCH LIMITATION ON DAMAGES INCLUDES, BUT IS NOT LIMITED TO, LOST GOODWILL, LOST PROFITS, LOSS OF DATA, WORK STOPPAGE OR IMPAIRMENT OF OTHER GOODS, REGARDLESS OF THE LEGAL THEORY ON WHICH THE CLAIM IS BROUGHT, EVEN IF MOTOR HAS BEEN ADVISED OF THE POSSIBILITY

A/C Database End-User License Agreement (continued)

OF SUCH DAMAGE OR IF SUCH DAMAGE COULD HAVE BEEN REASONABLY FORESEEN, AND NOTWITHSTANDING ANY FAILURE OF ESSENTIAL PURPOSE OF ANY EXCLUSIVE REMEDY PROVIDED IN THIS AGREEMENT.

5. **TERM; TERMINATION.** This Agreement is effective for the period of time set forth in your Agreement with the web site owner hosting the DATABASES, but in no event longer than the term of the agreement between MOTOR and that web site Distributor. MOTOR may terminate this Agreement if You do not comply with any term or condition of this Agreement. Should this Agreement terminate, You agree to destroy any data previously obtained from the DATABASES.
6. **MISCELLANEOUS.**
 - (a) This Agreement is the complete and exclusive statement between You and MOTOR relating to the subject matter hereof and supersedes all prior oral, written and/or contemporaneous negotiations, commitments and understandings of the parties.
 - (b) This Agreement shall be governed by the laws of the State of New York without giving effect to any principles of conflicts of law. The United Nations Convention on Contracts for the International Sale of Goods shall not apply. You hereby irrevocably and unconditionally submit to the exclusive jurisdiction of any state or federal court sitting in New York, New York over any suit, action or proceeding arising out of or relating to this Agreement; provided that the foregoing shall not restrict Licensor or its agents from filing suits, actions or proceedings arising out of Host's failure to pay in any jurisdiction of Licensor or its agent's choice.
 - (c) No delay or failure by MOTOR to exercise or enforce at any time any right or provision hereof shall be considered a waiver thereof or of MOTOR's right thereafter to exercise or enforce each and every right and provision of this Agreement.
 - (d) If any provision hereof shall be held illegal, invalid or unenforceable, in whole or in part, such provision shall be modified to the minimum extent necessary to make it legal, valid and enforceable, and the legality, validity and enforceability of all other provisions of this Agreement shall not be affected thereby.
 - (e) This Agreement may only be amended, modified, suspended or canceled by a writing signed by MOTOR.
 - (f) This Agreement may be assigned by MOTOR, but may not be assigned by You.

CPS Company Locations

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